COTTON

SERVING THE Textile Industries

MARCH, 1938

NOW

Your Employees Can Enjoy "by-Prescription" PROTECTION

No longer is it necessary to accept cut-and-dried Group Welfare Insurance plans that may not meet the individual needs of your plant.

For over a half-century the Provident has been devising specialized programs on "prescription"—that is, with benefit ingredients proportioned exactly to fit the needs of workers in various industrial plants.

Without obligation, let our trained representatives make an analysis of your welfare situation, upon which to base a suggested Group protection plan—"by-prescription"—to suit your individual needs.

Such "by-prescription" Welfare Plans can help solve financial burdens of employees—without cost to employers—by meeting the extra expenses caused by—

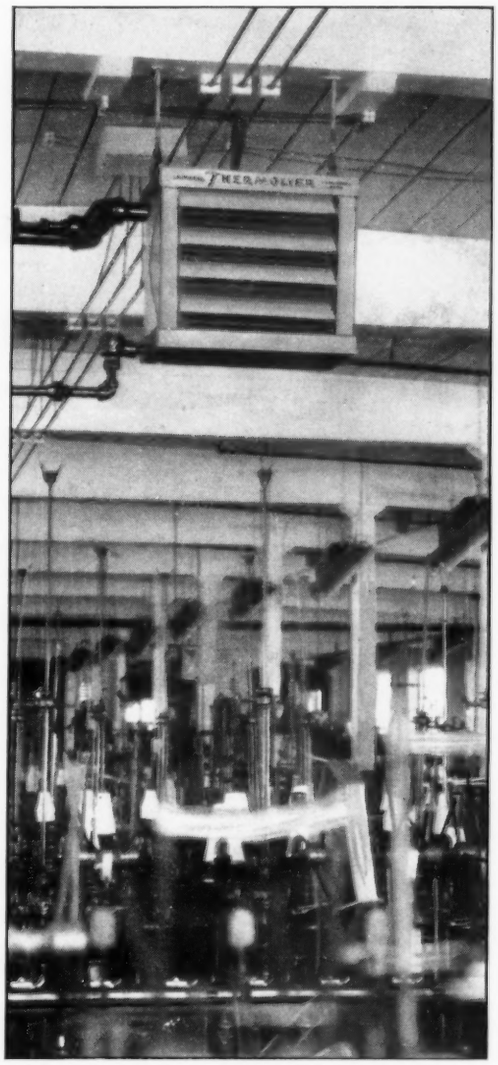
- Death in family.
- Loss of time due to accident or sickness.
- Hospitalization or operation when necessary.
- Aiding dependents upon death of employee.

PROVIDENT
LIFE AND ACCIDENT
INSURANCE COMPANY

CHATTANOOGA, TENNESSEE

MANUFACTURER WITH 50 PLANTS

CUTS *heating costs* 30%

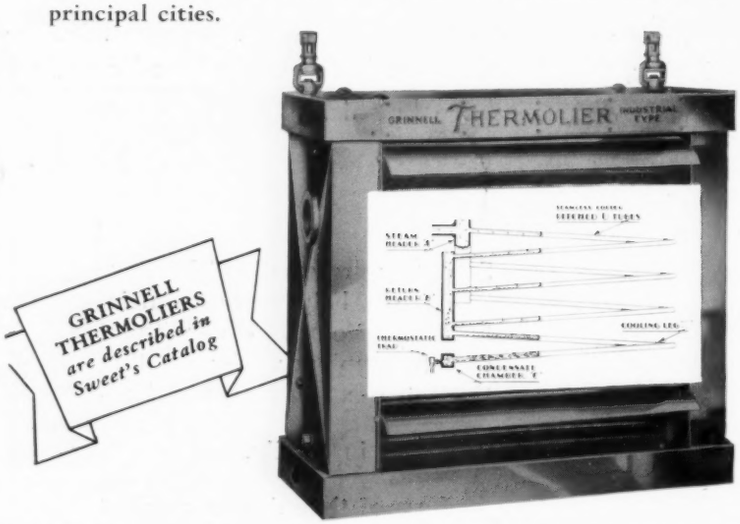


One of the largest U. S. manufacturers, operating over 50 plants, adopted Thermoliers for all new buildings and for many older plants. Average overall savings of 30 percent are reported. In one plant alone, savings are estimated at $50.00 per day.

Now is a good time to plan for a truly efficient heating system in your plant — one which delivers plenty of heat when you want it and where you want it.

Investigate Thermoliers. Their 14 points of superiority place Thermoliers as the No. 1 heating units in the minds of engineers.

We shall be glad to send you a copy of the Thermolier Data Book which points out why Thermoliers usually save 28% over old, inefficient heating systems. Grinnell Company, Inc., Executive Offices, Providence, R. I., Branch offices in principal cities.



No "LAZY WATER"

"Lazy Water"—condensate that lies in many unit heaters causing loss of heat and water hammer — is drained continuously by Thermolier's exclusive Internal Cooling Leg. This feature keeps *all* of the heater working *all* of the time. You get more heat at less cost with Thermoliers. This is but one of the 14 Points of Superiority.

GRINNELL THERMOLIER

THE UNIT HEATER WITH 14 POINTS OF SUPERIORITY

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Entered as second-class matter at the Post Office, Dalton, Ga., under the Act of Congress of March 3, 1879.

Under the Trip Hammer
of Rising Costs of
Doing Business
the Mill
with Slow Speed Looms
Can't
Stand the Pressure

It Cracks Up

But the Mill
with
High Speed Looms
Can
Stand the Pressure
and Break the Force
of Mounting Costs

It Has a Present
and a Future

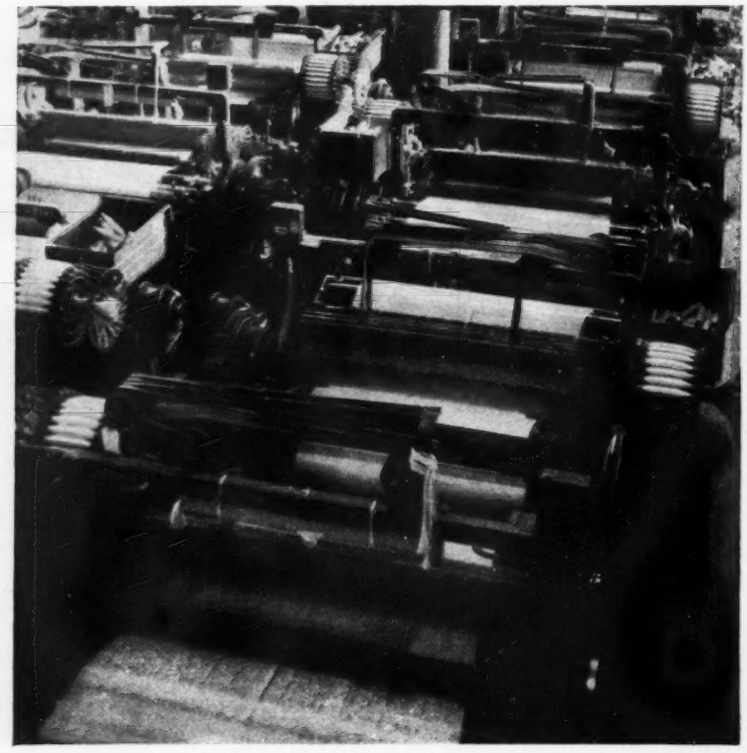
Periods of Profits in Textiles are Short
But Good While They Last
Get Your Mill Ready for the Next One
Install Draper High Speed Looms

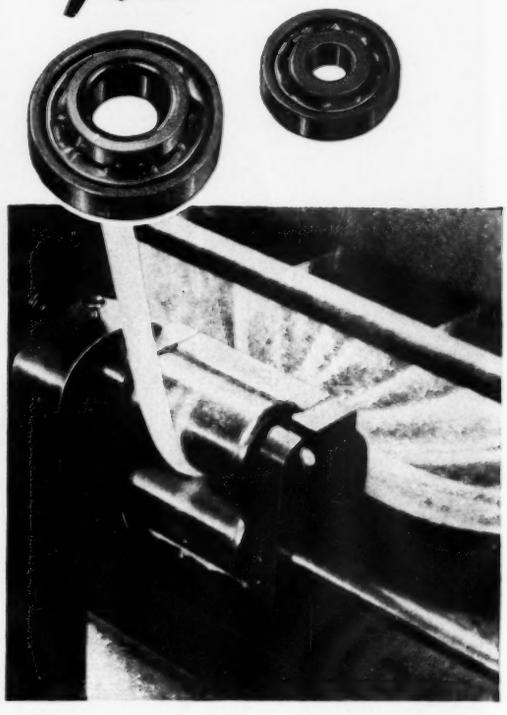
DRAPER CORPORATION

Atlanta Georgia Hopedale Massachusetts Spartanburg S C

"BANG-OFF" TESTED 150,000 TIMES

Ready for More!





The many small, high-speed ball bearings used on textile machinery make possible a considerable saving in power, when positively and continuously lubricated. Texaco Starfak keeps the polished surfaces of high-speed anti-friction bearings in prime condition.

THE SHOCK of starting and stopping a loom 150,000 times is a severe test of the ball bearings. Examined upon completion of this test, they were still in first-class condition.

It is performance like this that shows the advantages of protecting high-speed ball bearings with Texaco Starfak. Here is a lubricant that gives you, immediately, an astonishing reduction in starting and running torque . . . that reduces wear and lowers power bills.

Free from impurities that can cause bearing drag, Starfak's lubricating qualities are unaffected by long use. It does not become spongy, separate, or break down under high speeds or temperatures.

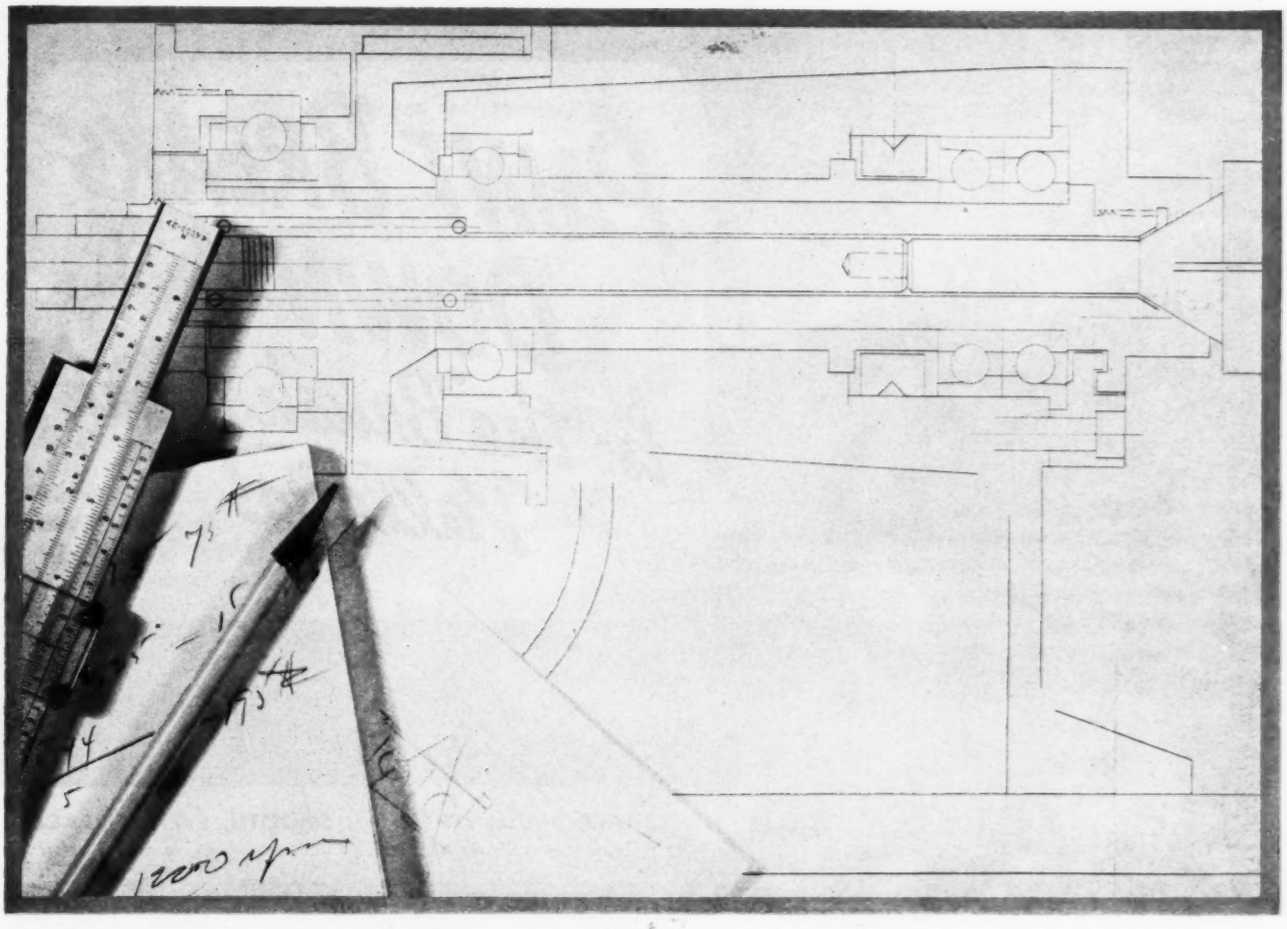
Trained lubrication engineers are available for consultation on the selection and application of Texaco Starfak and other Industrial Lubricants. Prompt deliveries assured through 2108 warehouse plants throughout the United States. The Texas Company, 135 East 42nd Street, New York City.

TEXACO

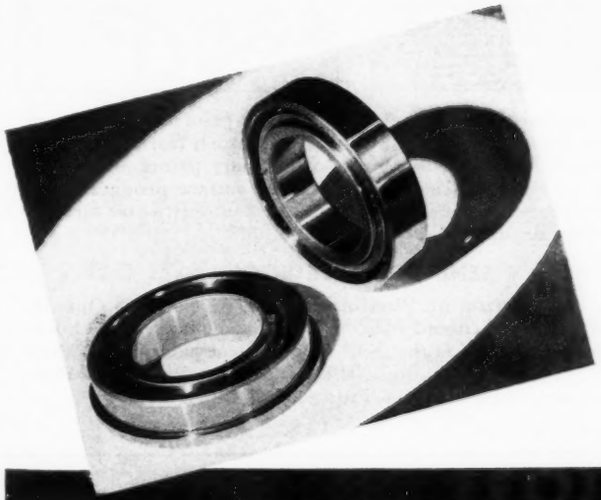
REG. T. M.

TEXACO

STARFAK



"New Departure Engineering Makes Sense" — Say Engineers



. . . and practical common sense, too—because New Departure application engineering does not stop with selection of bearing type, size, details of mounting and lubrication, but considers the design from *your* standpoint: the feasibility and economy of production for *you*—and just as carefully as if it were for New Departure's own manufacture and use. Let our engineers assist you in your bearing work. There is no obligation. Ask for Booklet I, "Ideas by New Departure Engineers."

2659

NEW DEPARTURE Ball Bearings

New Departure · Division General Motors Corporation · Bristol, Connecticut

NOTHING ROLLS LIKE A BALL

Avoid Uneven Paint Surfaces With Pittsburgh Sun-Proof Titanic Outside White

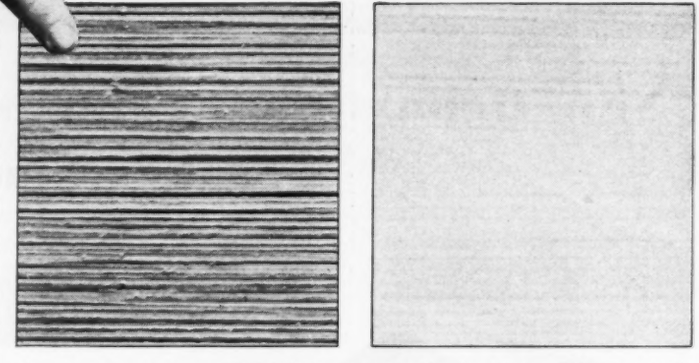
ORDINARY exterior paints seldom level out to a really smooth surface. They are apt to leave rough, uneven brush-mark "hills and valleys." And it is in these "valleys" that the film is the thinnest. Here is where the paint breaks down.

Avoid costly deterioration by specifying Pittsburgh Sun-Proof Titanic Outside White. This dependable, protective coating contains a specially processed vegetable oil—called Vitoloil—that controls penetration and has far superior sealing value. A large portion of this oil remains in the paint film, leaving a more uniform surface—tough and elastic.

There are no brush marks—no "hills and valleys"—with Pittsburgh Sun-Proof Titanic Outside White. Specify this durable finish for long-lasting beauty and protection—and save on maintenance costs!

SHARP BRUSH MARKS
Typical of ordinary paints

SMOOTH, EVEN SURFACE
No brush-marks with Vitoloil



Above you see unretouched photographs of two paint surfaces applied to a single piece of wood. At the left, the brush mark "hills and valleys" which break down the film of ordinary paints are plainly visible. At the right notice the smooth, even surface produced with Pittsburgh Paint—the influence of Vitoloil! No destructive furrows here. For best results, "Paint with Pittsburgh!"

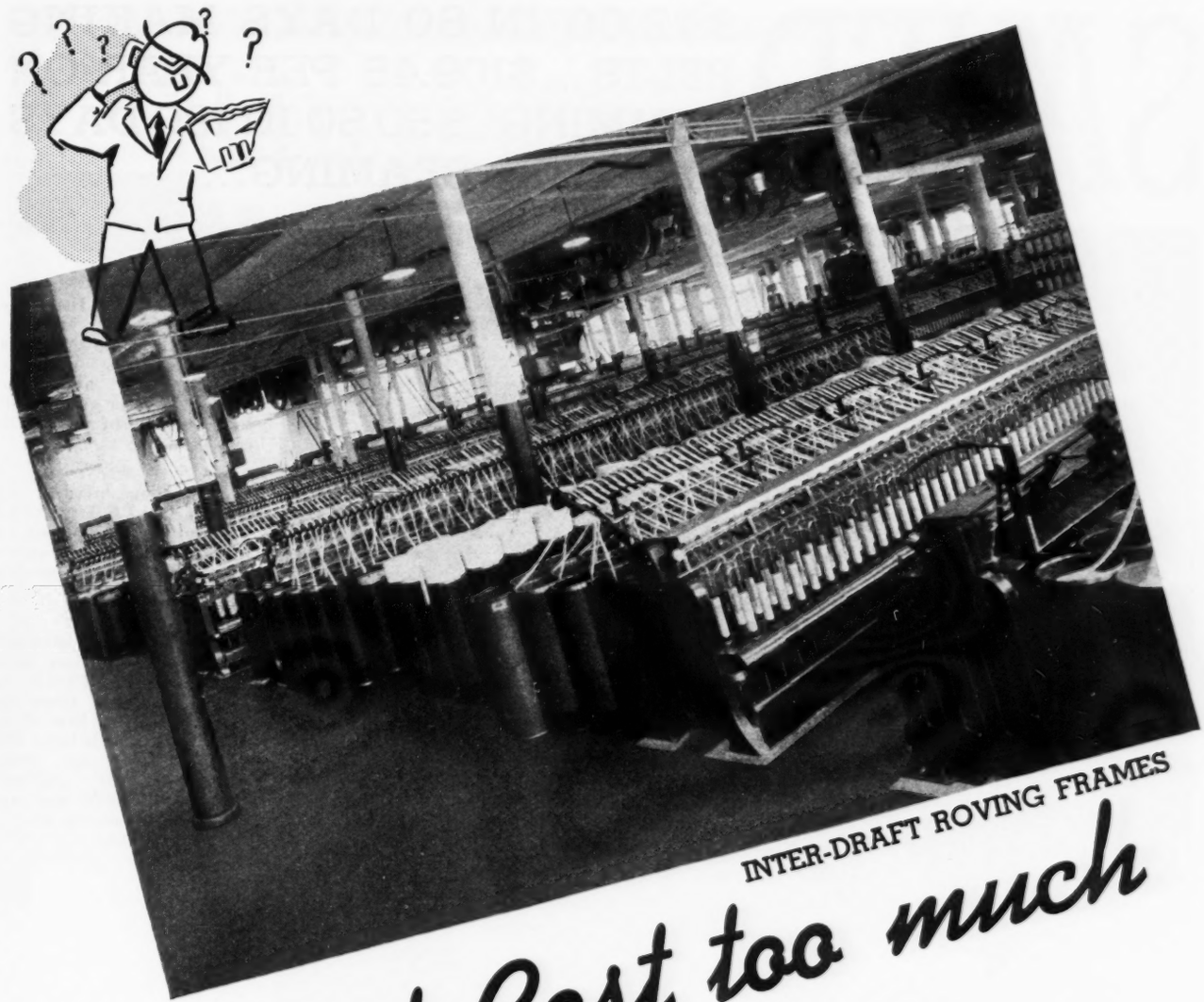
SEND FOR FREE BOOK

Complete information on Pittsburgh Sun-Proof Titanic Outside Whites and Vitoloil is contained in our "Sun-Proof" book. It is chock-full of money-saving facts that will help you cut paint bills. Write for it *now!* Just send your name and address to: Pittsburgh Plate Glass Company, Paint Division, Pittsburgh, Pennsylvania.

Copr. 1938 Pittsburgh Plate Glass Co.

PITTSBURGH PAINTS
Smooth as Glass

COMPLETE LINE OF STRUCTURAL MAINTENANCE FINISHES



INTER-DRAFT ROVING FRAMES

Does it Cost too much

TO MAKE YOUR YARNS?

ELIMINATE unnecessary machines . . . and do the job better.

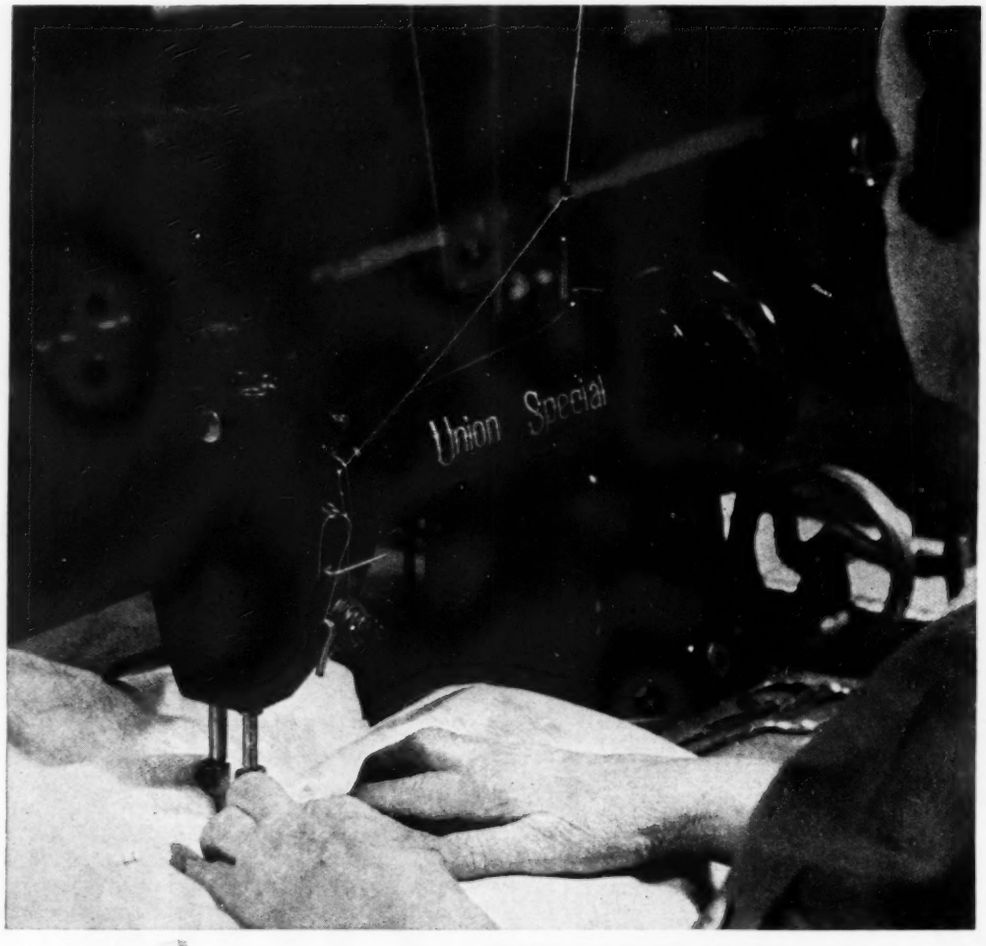
To mills that are still running multiple roving processes, the Whitin Long Draft Roving Systems offer opportunities for manufacturing economies.

WHITIN MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. ATLANTA, GA.

SAVED $42.00 IN 80 DAYS MAKING BELTS...$109.45 PER YEAR ON HEMMING...$50.50 IN 180 DAYS ON PLAIN SEAMING...



At Max Stone, Inc., the Union Special LOCKSTITCH demonstrated its ability to increase production on belts 14.7%. This is equivalent to a saving of $42.00 in eighty days.

✣ ✣ ✣

In another plant, the LOCKSTITCH stepped up output 19.8% on a long hemming operation. The net annual saving figures $109.45.

✣ ✣ ✣

In a well known garment factory, the Union Special LOCKSTITCH is used for plain seaming. Despite the fact that short runs with much time out for handling are common, records indicate savings of $50.50 per machine in a season of 180 working days.

FREE: *Ask for a copy of this 8-page illustrated bulletin describing the outstanding mechanical features of the Union Special LOCKSTITCH machine.*

-and it costs less to own!

ALTHOUGH priced lower than you may believe, the new Union Special LOCKSTITCH machine is by no means the cheapest machine on the market. Yet time after time, it has proved to be the LEAST EXPENSIVE machine for a manufacturer to own. In other words, users find that it costs less to keep it going... and that more work can be finished in a shorter length of time.

The LOCKSTITCH is designed to handle a wide variety of single needle seaming, hemming and piecing work. All common attachments for pinking, pleating, folding, guiding, etc., are readily applied and the Union Special factory is always glad to work out additional special attachments. *Write for complete information.* UNION SPECIAL MACHINE CO., 438 North Franklin Street, Chicago, Illinois.

THE Lockstitch
UNION SPECIAL

"GULFCREST OIL HAS RUN 3 TIMES AS LONG AS ANY OIL WE EVER USED IN THIS TURBINE UNIT" . . . says plant Engineer

"THIS GULF ENGINEER was right when he said that Gulfcrest is an entirely different kind of turbine oil. The batch we have in this unit now has run *three times as long* as any oil we ever used."—states this power plant engineer.

The quality of Gulfcrest Oil is not due alone to the fact that it is made from the finest lubricating oil stocks obtainable. Gulfcrest is refined by a special process—Gulf's Alchlor Process—which gives this quality turbine oil a higher degree of stability than any of which we have record. The four reasons at the right tell you why this is true.

4 REASONS

Why Gulfcrest Oil is the Turbine Lubricant of Unparalleled Quality

1 *Refined by the ALCHLOR Process.* This famous process, patented and owned exclusively by Gulf, is the most thorough and effective method for removing chemically active hydrocarbons as well as the general run of impurities present in all crudes.

2 *Highest resistance to oxidation.* Because this famous ALCHLOR Process synthesizes and rearranges the molecular structure of certain hydrocarbons, resulting in a finished product of greater stability, GULFCREST OIL stands alone in its high resistance to oxidation.

3 *Highest resistance to acidity and sludge.* Because of the elimination of oxidation catalysts in addition to the unparalleled refining power of the Alchlor Process, these oils form less gum and deposits, less emulsion and sludge, when mixed with water over a period of several years continuous operation, than any other turbine oil of which we have record.

4 *Highest kilowatt-hour performance.* Because Alchlor not only makes possible an oil more thoroughly refined and homogeneous but also creates antioxidants, these oils have great resistance to deteriorating influences and are longer lived. Less makeup oil is required.

Gulf Oil Corporation • Gulf Refining Company

GENERAL OFFICES: GULF BUILDING, PITTSBURGH, PA.

MAKERS OF A COMPLETE LINE OF FUEL AND FURNACE OILS

GULF INDUSTRIAL LUBRICATION

$7,071 IN YEARLY COSTS WIPED OUT

Again Taylor completely engineered Automatic Slasher Control soon pays for itself . . . assures uniform finished goods

YEARLY, $390's worth of size materials—SAVED. Two hundred and sixty tons of coal, or $1,404—SAVED. One per cent of all cotton used, or $3,680—SAVED. A 1% increase in weave room efficiency, meaning $1,597 yearly—SAVED.

The total for all these savings is $7,071. And all are due to Taylor *Completely Engineered* Automatic Temperature Control in the slasher room.

These results are not unusual. In every mill where Taylor Automatic Temperature Control has been installed it has usually paid for itself in a matter of months, many times in less than a year!

In all cases, Taylor Control is designed for increased weave room efficiency and better hand and appearance in the cloth. In most cases (as in this one), a material cotton saving is made. Under manual operation, there is poor solid retention on the warp. This requires the use of slightly coarser yarn numbers in order to maintain cloth weights. Under Taylor automatic operation, with more uniform slashing, finer yarn numbers can be used. A saving in cotton naturally follows.

Your mill, too, can enjoy the money-saving—and money-making—advantages of Taylor *Completely Engineered* Automatic Temperature Control. Taylor textile engineers have successfully solved control problems for more than fifteen years. They bring this experience with them when they undertake a specific job for you. Just get in touch with a Taylor representative, or write Taylor Instrument Companies, Rochester, N. Y. Plant also in Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.

Taylor

Indicating Recording Controlling

TEMPERATURE, PRESSURE, FLOW *and* **LEVEL INSTRUMENTS**

5 REASONS WHY

We call Taylor Automatic Temperature Control

"COMPLETELY ENGINEERED"

1. Taylor Textile Engineers survey your mill thoroughly.

2. They consider your installation an individual problem, recommending instruments and steam and size distribution to fit your specific needs.

3. Taylor Textile Engineers install complete systems to insure definite savings and profits.

4. They remain on the job to supervise the installation of every Taylor instrument.

5. Taylor Textile Engineers properly balance your slasher room operating conditions and help train your personnel in operating procedure to insure continuous efficiency.

A few of the most progressive mills now using Saco-Lowell Controlled Draft Roving.

TEN years ago Controlled Draft Roving was an idea. Today it is an achievement which has so revolutionized conventional methods of roving that its adoption must certainly interest every mill now using multi-roving processes. Furthermore, its acceptance by the most progressive mills in the industry is a definite indication and additional proof that this new technique is here to stay.

But what are the facts? Simply these: Controlled Draft Roving eliminates excessive doubling — yet improves quality. There is a more regular distribution of the fibres — fewer irregularities — greater strength — consistent uniformity. And mills spinning a number of counts can do so with two or three rovings.

Interpreted in terms of investment —Controlled Draft Roving means lower operating costs, greater efficiency, and more profits.

You want *facts, proof, evidence* — not words or claims . . . Saco-Lowell engineers would like to go over the details with you.

SACO-LOWELL SHOPS

60 BATTERYMARCH STREET, BOSTON, MASS.

CHARLOTTE, NORTH CAROLINA GREENVILLE, SOUTH CAROLINA ATLANTA, GEORGIA

Get THESE BULLETINS TO HELP YOU SPECIFY

The Right BELTING and HOSE for your needs

Do you have close at hand accurate descriptions of various grades of mechanical rubber belting and hose, and correct engineering data to assist you in choosing the right grade and size for the particular job.

These six bulletins are available to you on request and will prove invaluable. Many tables on horse power ratings, working pressures, etc. are given together with helpful information on the many factors to be considered and recommendations based on our long experience.

It is Republic's aim to give users every possible assistance in making selections among the many grades and sizes of belting and hose. Some buyers, whose use of these products is limited, hesitate to call a factory engineer and would be greatly benefited by concise and valuable information that could be referred to on a moment's notice.

Send for these bulletins at once.

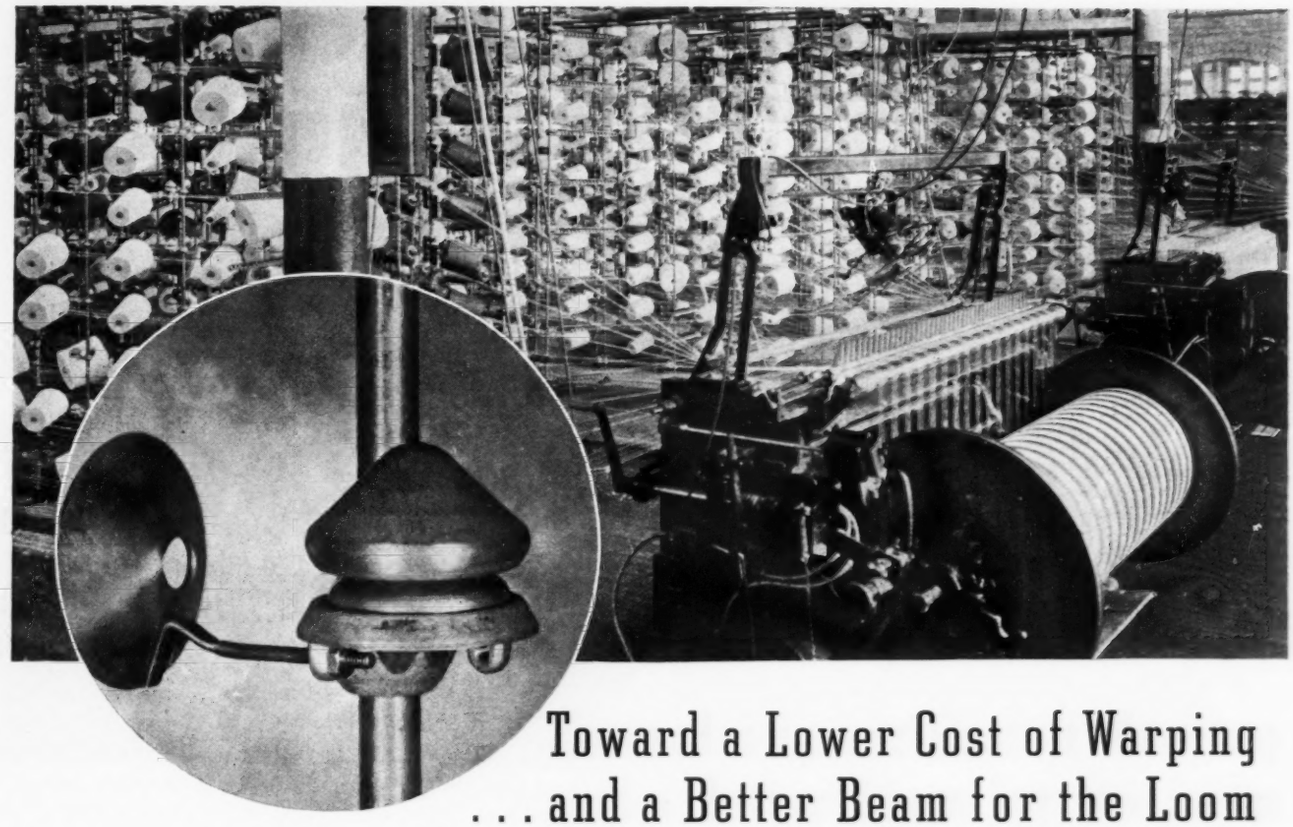
REPUBLIC RUBBER

Division OF LEE RUBBER AND TIRE CORPORATION

YOUNGSTOWN, OHIO

Manufacturers of HOSE
BELTING • PACKING
MOLDED PRODUCTS

ORDER REPUBLIC RUBBER PRODUCTS FROM YOUR DISTRIBUTOR



Toward a Lower Cost of Warping ... and a Better Beam for the Loom

THE large photograph illustrates features of the Universal Creel and high speed warper used for preparing warps with colored stripes. The white cones in the creel are magazined.

The colored cones are changed according to specifications for the cloth. Each cone holds enough yarn for three or more full beams without creeling. When changing over from blue to red, for example, the extra cone holders can be used to load the red cones while the blue cones are running in the warper.

The tensions are of the anti-lint type (see smaller picture), with streamlined bracket and a cap over the disc to prevent lint accumulation. This new design of tension also has fewer contact points, and the anti-balloon disc controls lively yarn; both these features mean less chafing. The number of contact points in the warper have also been reduced to a minimum.

The measuring clock on the warper counts accurately the number of yards going into the beam, replacing the old-style "wrap" clock, and making it possible to stop the warper automatically for any required yardage. The clock is quickly reset to run off the same number of yards on the next beam or can be quickly changed to a different yardage if required.

* * * *

These are only a few of the new features which have helped to create a new Universal High Speed Warping System . . . which presents far more opportunities for savings than older Universal installations. A complete account of these improvements is contained in a bulletin now being printed. Have us send you Bulletin 244.

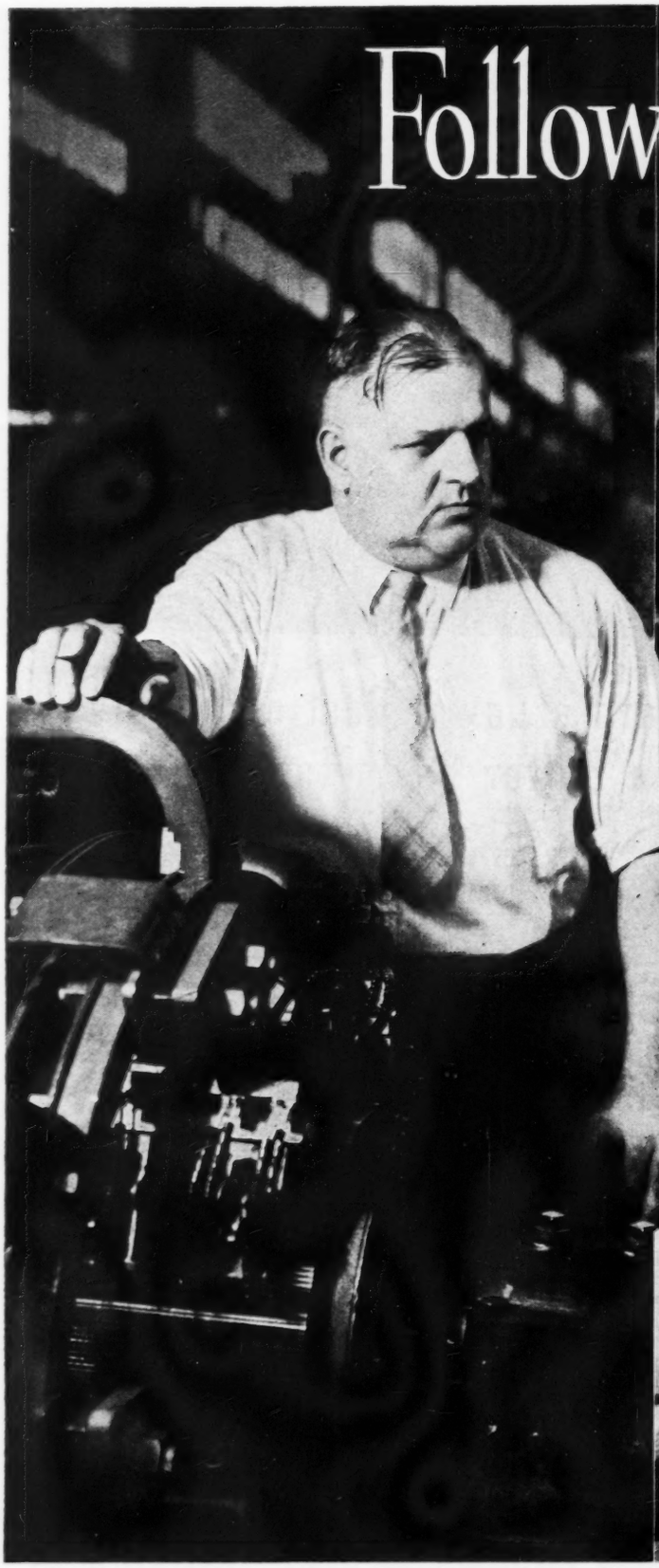
In 3 Out of 4 Mills More Net Return

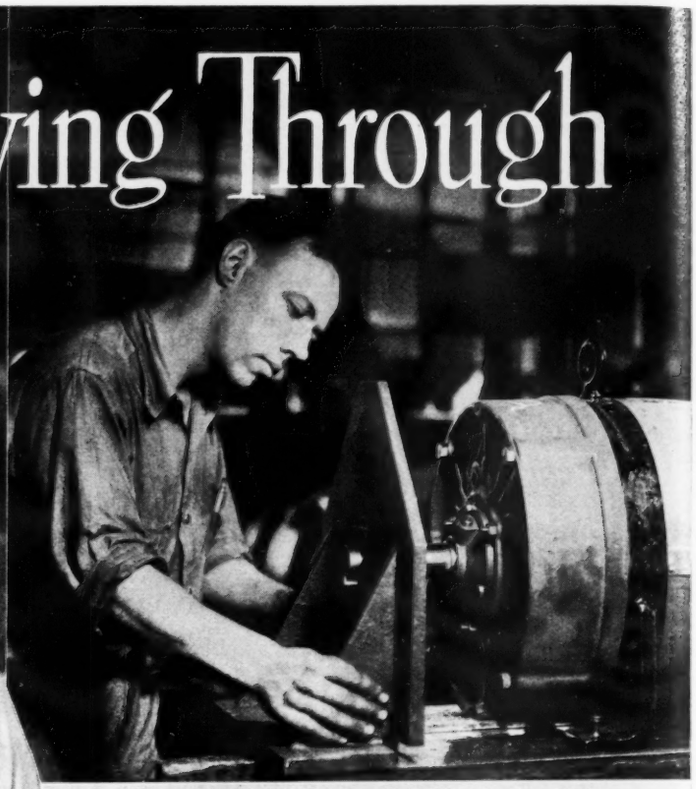
UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA

8528

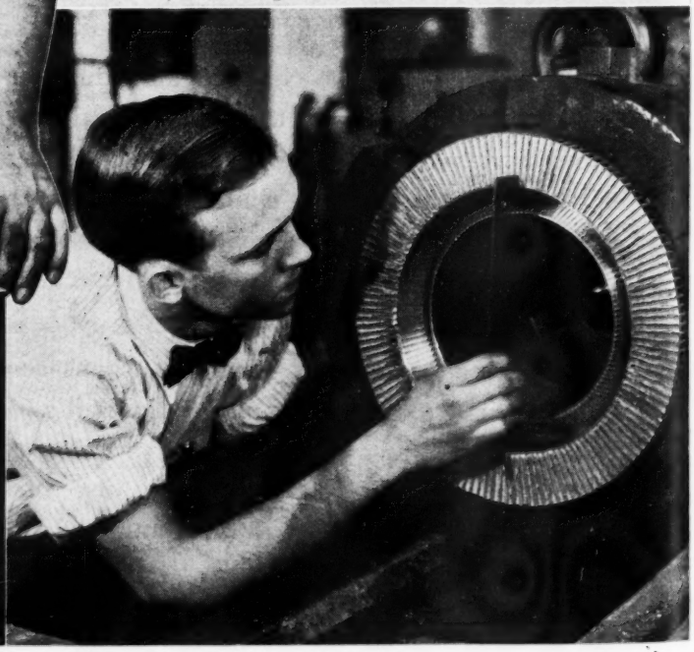
Following Through





Above. Final inspection . . . Checking shaft height, the spacing of holes for holding-down bolts, and their location with respect to the shaft shoulder.

Below. All parts are gauged for accuracy while in process of manufacture.



During his 26 years in engineering and manufacture, Charlie Williams has seen Reliance policies and ideals crystallized through decision and action. With a clear understanding of such intangibles he is well qualified to direct the work of guarding Reliance quality.

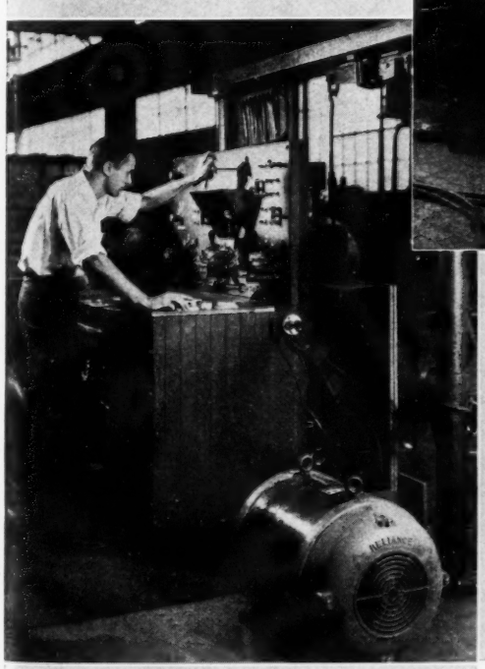
on Reliance *Quality*

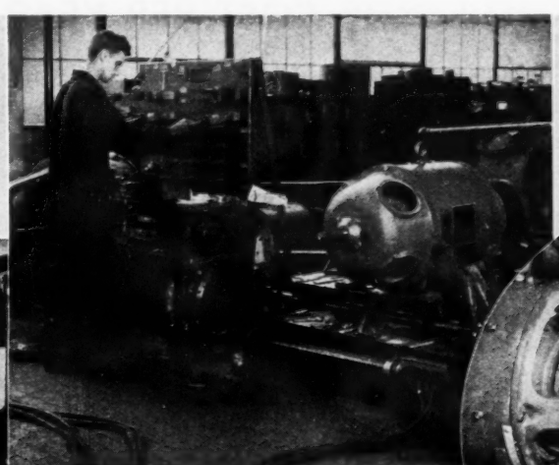
Because of a closely-knit organization we can do things at Reliance in unusual ways which put added value into our product. Here inspection and tests are in charge of the Engineering Department. In this way, *engineering* follows the motor from the point of design to the shipping floor. Raw materials, parts in process, and assembled units are constantly under the observation and control of men primarily interested in maintaining high standards of quality which have been set for Reliance Motors. It's never a case of "getting by" but of "making sure." Our inspection and test work is followed through on this basis.

C. R. Williams

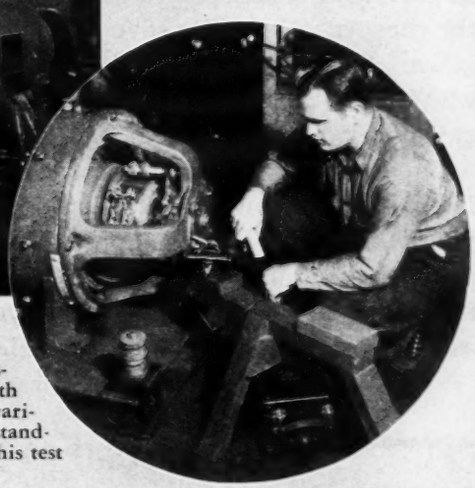
Engineer in Charge of Inspection and Tests

Below. A locked-rotor test given each alternating-current motor provides a definite check against standards which have been set for a particular rating.





Left. Every direct-current Reliance Motor is put through its paces *under load.*



Right. Care is taken to produce units which when assembled will insure a smooth running-balance. Any variation from established standdards will be caught by this test with a vibrometer.

Reliance Electric and Engineering Co. · 1088 Ivanhoe Road, Cleveland

BRANCHES: BIRMINGHAM • BOSTON • BUFFALO • CHICAGO • CINCINNATI • DETROIT
GREENVILLE, S. C., • NEW YORK • PHILADELPHIA • PITTSBURGH

Representatives In Other Principal Cities

RELIANCE A-C D-C MOTORS

WHEN YOU PAINT, WOULD PENNIES *or*

If you buy paint simply by **COST PER GALLON,**
you may save pennies...and lose dollars

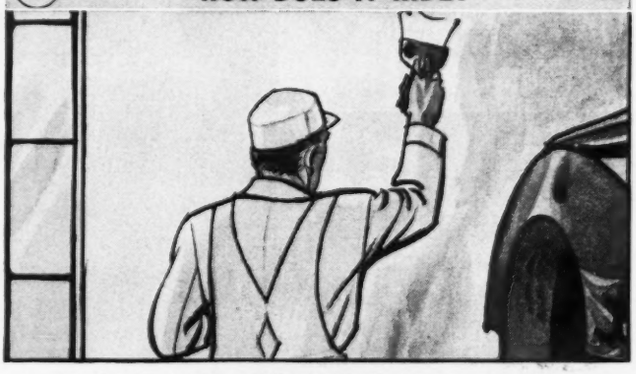
The real measure of paint economy is not cost per gallon
IT'S COST PER JOB PLUS COST PER YEAR OF SERVICE

IT isn't necessary to pay a high price for a good mill white. Nor is it economy to buy the cheapest. You may save a few cents per gallon. But you will lose dollars if the mill white takes longer to apply, and requires more gallonage to do a good job.

Labor costs far exceed the cost of any paint. Naturally, the mill white that does a good job *fastest* with *fewest* gallons costs you least.

Judge the mill white you buy by the *six* qualities a mill white must have to keep your paint overhead down to the lowest possible point.

1 HOW DOES IT HIDE?

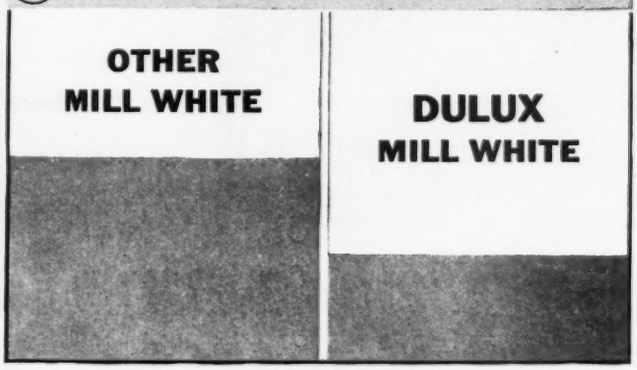


The intense hiding of DULUX Mill White means fewer coats needed. This saves gallons, labor time and your Company's money.

2 HOW FAST DOES IT GO ON?

DULUX saves brushing time. It flows smoothly, evenly quickly...and it's self-leveling. Painters cover more area per hour. More labor time saved here.

3 HOW FAR DOES IT SPREAD PER GALLON?



Impartial tests prove that DULUX Mill White spreads considerably farther per gallon. This means that you need fewer gallons for the job.

YOU RATHER SAVE DOLLARS?

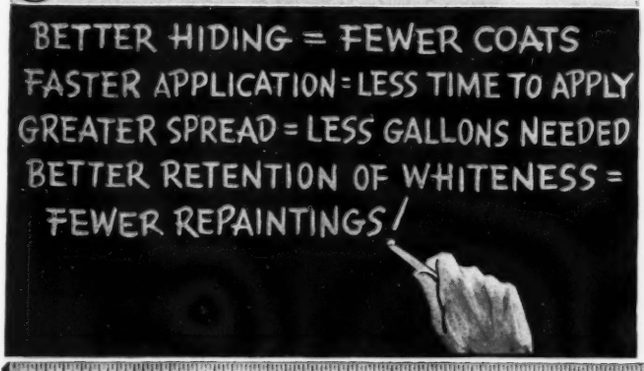
4 DOES IT STAY WHITE?

The *whiter* whiteness of DULUX Mill White means maximum light reflection . . . it keeps its whiteness longer.

5 HOW LONG DOES IT LAST?

The amazing durability of DULUX means big savings, because of fewer repaintings over a period of years.

6 DOES IT SAVE MONEY?


BETTER HIDING = FEWER COATS
FASTER APPLICATION = LESS TIME TO APPLY
GREATER SPREAD = LESS GALLONS NEEDED
BETTER RETENTION OF WHITENESS = FEWER REPAINTINGS!

DULUX Mill White has the right balance of these important qualities to give you a better job . . . with less gallonage . . . in a shorter time. This means lowest cost per *job*—the real measure of paint economy. More than that, this whiter, amazingly durable mill white stays white longer. And *this* keeps paint maintenance costs down to the lowest possible minimum.

Do *you* know about DULUX? If not, you may be spending more than necessary on paint overhead. A Du Pont maintenance engineer will be glad to call and give you full information. Send in the coupon below for complete story.

DU PONT **MEASURE PAINT VALUE BY THE PERFORMANCE YARDSTICK** DU PONT

DU PONT
REG. U.S. PAT. OFF.

DULUX MILL WHITE
REG. U.S. PAT. OFF.

STARTS WHITER · STAYS WHITER

E. I. du Pont de Nemours & Co., Inc., C-38
Finishes Division
Wilmington, Delaware

Please see that I get full information about DULUX Mill White.

Name.....

Firm Name.....

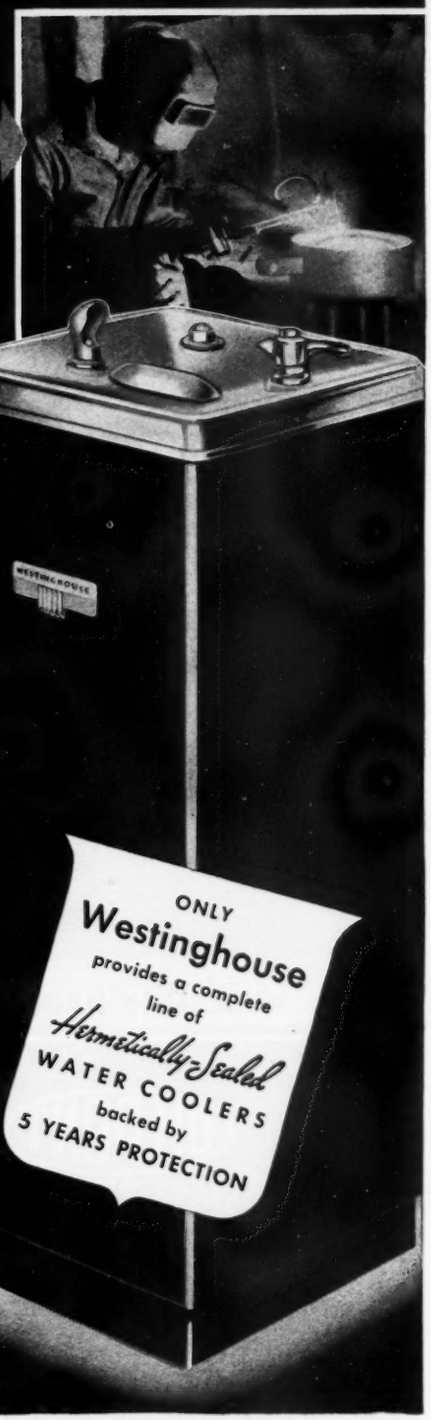
Address.....

City.....*State*.....

YOU'LL BE DOLLARS AHEAD WITH THE WATER COOLERS THAT ARE *Hermetically Sealed for*

EXTRA YEARS

OF TROUBLE-FREE PERFORMANCE



The very **LIFE** of a modern Water Cooler is its **MECHANISM**. The Westinghouse mechanism is sealed inside an airtight case of solid steel . . . Hermetically-Sealed . . . to **PROLONG** that life.

The exacting demands of industry make severe tests for *any* water coolers. Westinghouse Coolers have proved outstanding ability to meet these tests.

Such features as large ¾ inch, "free-passage" drain . . . special capacity booster . . . high efficiency cooling chamber . . . Built-In Watchman thermostat . . . lifetime lubrication . . . water or air-cooled mechanism . . . assure the **EXTRA** efficiency, economy, capacity and dependability that industry needs.

And in addition to all these advantages, the Westinghouse Hermetically-Sealed Mechanism is backed by

. . . 5 YEARS' PROTECTION

Ask your Westinghouse dealer for free copy of a useful folder — "How to Check Drinking Water Costs" or write — Westinghouse Electric & Manufacturing Company, Section 8205, Mansfield, Ohio.

Westinghouse
WATER COOLERS

HERMETICALLY SEALED FOR *Extra* YEARS OF TROUBLE-FREE PERFORMANCE . . . BACKED BY 5 YEARS PROTECTION

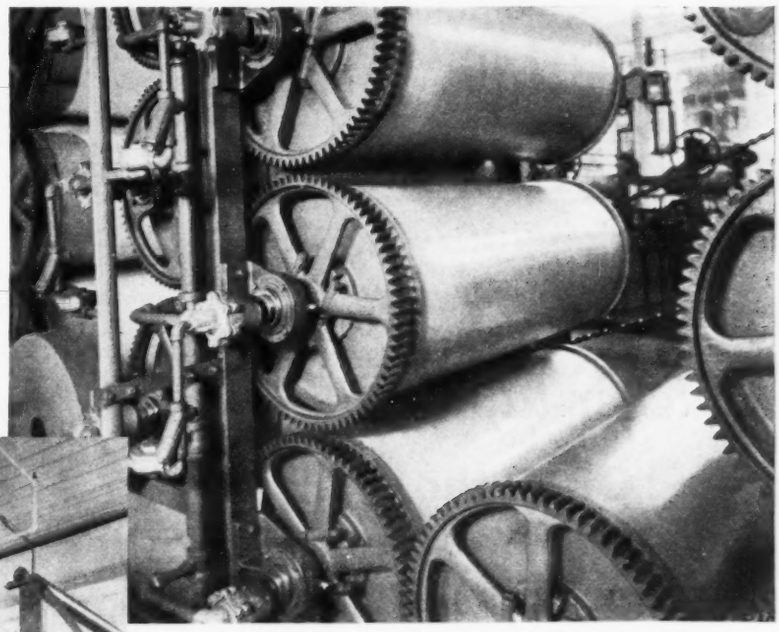
Explosion-proof models available

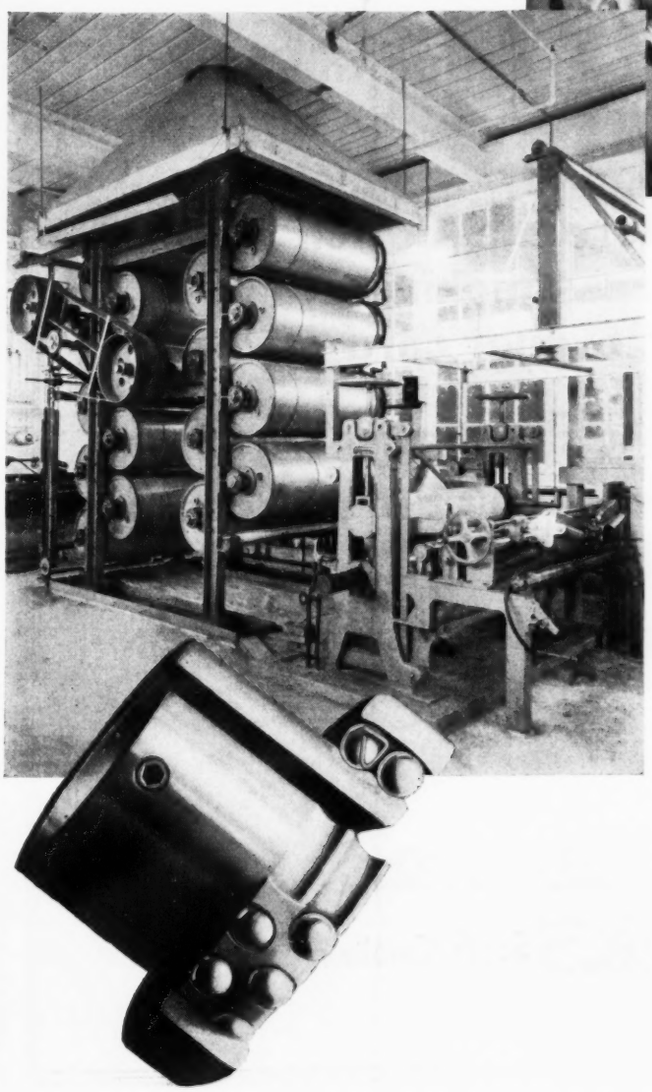
SKF CONTRIBUTES

BEARING FLEXIBILITY

TO MODERN STACK DRYERS

VERTICAL STACK DRYERS BUILT BY
H. W. BUTTERWORTH & SONS, CO.





EVERY feature of this Butterworth Vertical Stack Dryer is modern as its SKF Bearing Mountings.

The inherent flexibility provided by SKF Self-Aligning Ball Bearings assures smooth operation when the housings are mounted on the economical structural steel frame.

The SKF Mounting promotes cleanliness because it needs only occasional lubrication despite adverse temperature conditions.

More than 1000 of these SKF Mountings are giving dependable performance—proof that SKF puts the right bearing . . . and the correct stack dryer design . . . in the right place. 4053

SKF INDUSTRIES, INC., PHILADELPHIA, PA.

SKF

BALL AND ROLLER BEARINGS

YOU CAN'T SPIN A PICKER LAP

So why not judge the quality of the laps by the quality of the roving?

Weighing picker laps is about as informative as weighing 100-yd. sizings of sliver.

The real test, and the only real test, of a picker lap is the sliver it produces.

Of all the many tests comparing the Aldrich system with other kinds of single process picking equipment, we have never known of a case where the Aldrich Synchronized single process picking did not produce laps making evener card sliver.

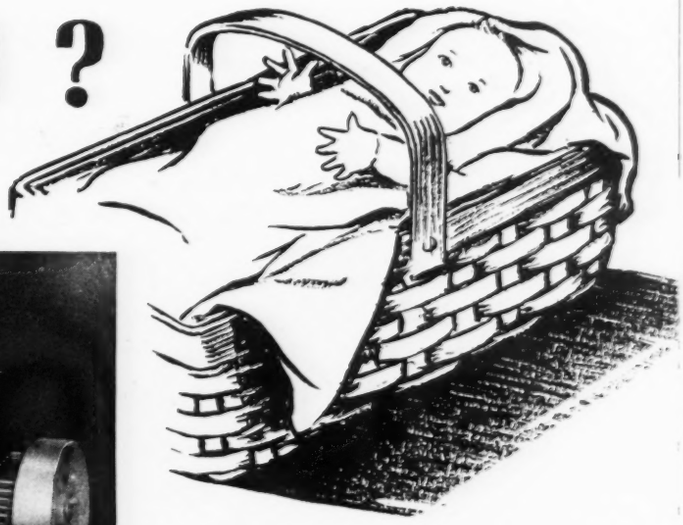
Every installation of long draft roving or spinning equipment with reduction in the number of doublings demands better work from the pickers, and emphasizes the advantages of the Aldrich system which does produce evener card sliver.

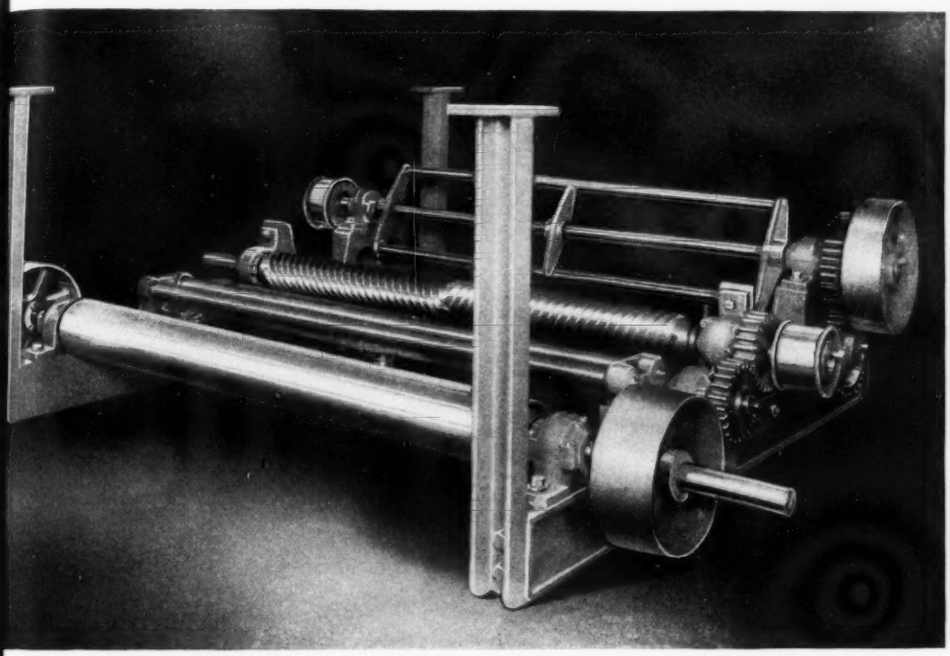
AldricH MachinE

Greenwood, **WorkS** South Carolina

Is your Finishing Plant

an ORPHAN ?





New Butterworth Scutcher incorporating the latest method of design and engineering.

MANY mills are marvels of effieiency in every department except the one that should be first in efficiency and everything it stands for . . .

The Finishing Department

It is a fact, and every textile man knows it, that a poorly equipped finishing plant can spoil the appearance of the product of the finest mill. Also, that a modernly equipped finishing plant, efficiently run, can add to the appearance and saleability of *any* piece of fabric.

It is because of problems being constantly put up to us that we urge you to consider whether or not *your* finishing plant is neglected, an orphan.

Here is a suggestion—inspect your own finishing plant—check it over with your employees—get their ideas. Remember the effect of modern machines on morale. Give your finishing department machinery as efficient as you give your cotton mill, and these men will take pride in turning out more work and better work at lower cost.

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

Established 1820

PLANTS at PHILADELPHIA and BETHAYRES, PA.

New England Office:
TURK'S HEAD BUILDING
Providence, R. I.

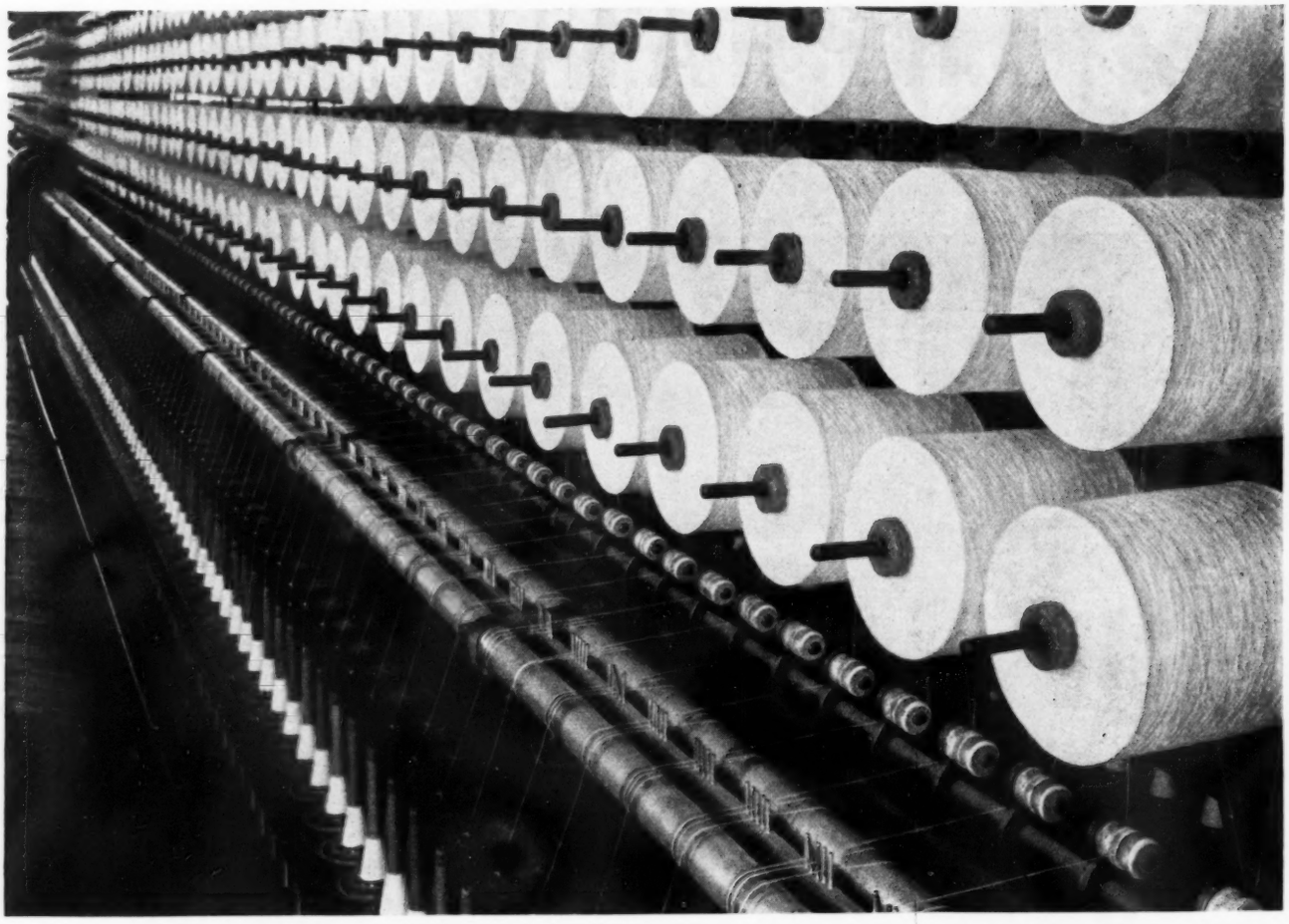
Southern Office:
JOHNSTON BUILDING
Charlotte, N. C.

In Canada:
W. J. WESTAWAY CO.
Hamilton, Ontario

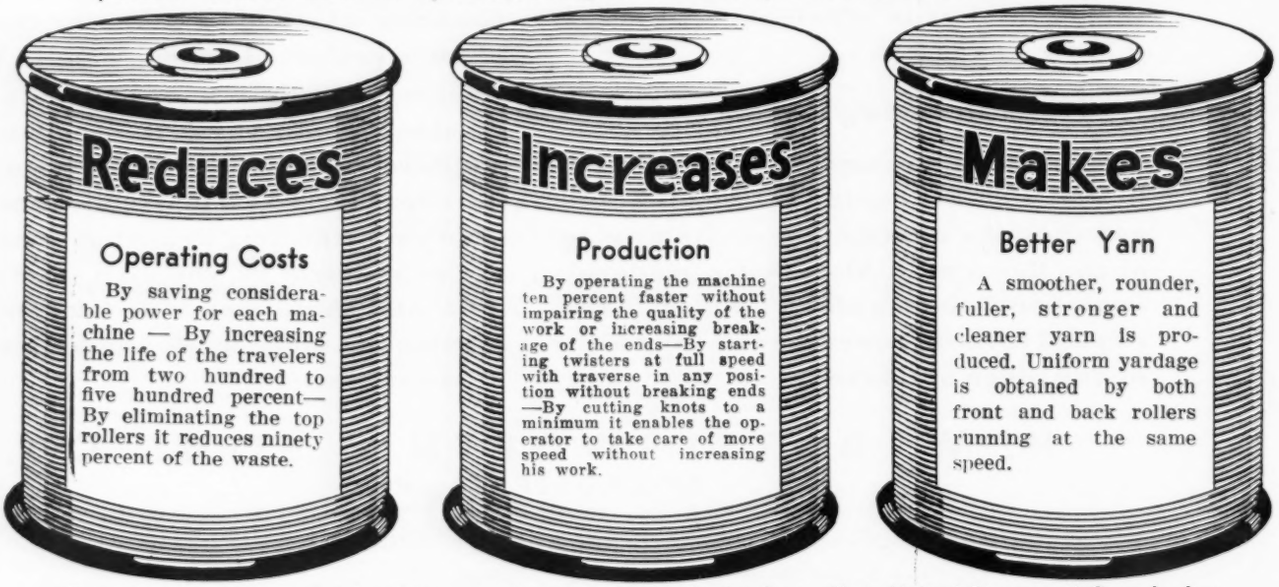
BUTTERWORTH *finishing* MACHINERY

A COMPLETE LINE OF FINISHING AND RAYON MACHINERY FOR THE TEXTILE INDUSTRY

The Improved BACHMAN GUIDE
(Fully Protected by Patents)

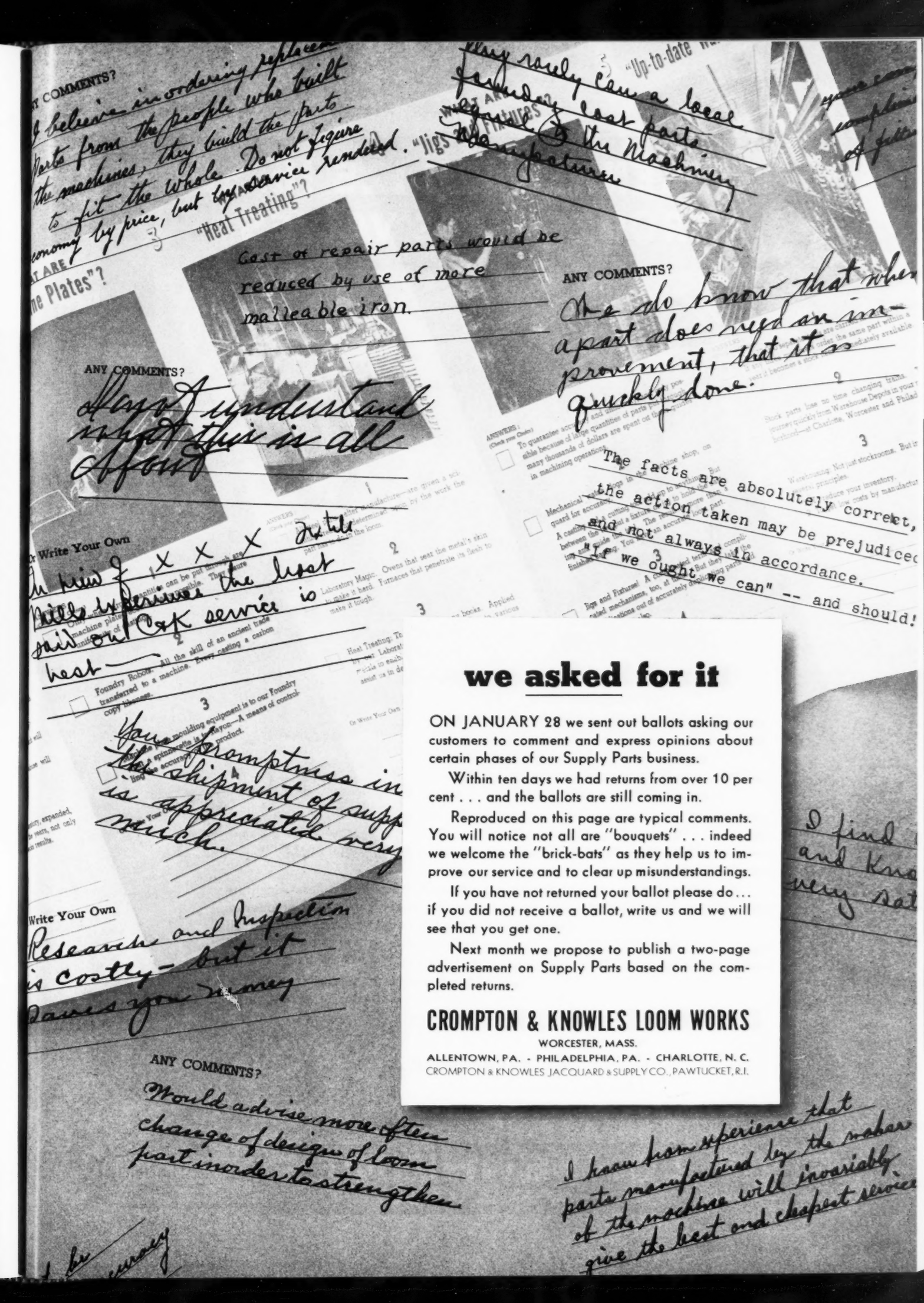


The Improved BACHMAN GUIDE has been *tested* under actual mill operating conditions and the experience of those cotton mill operators throughout the country attests to the definite findings below:


Reduces
Operating Costs
By saving considerable power for each machine — By increasing the life of the travelers from two hundred to five hundred percent—By eliminating the top rollers it reduces ninety percent of the waste.
Increases
Production
By operating the machine ten percent faster without impairing the quality of the work or increasing breakage of the ends—By starting twisters at full speed with traverse in any position without breaking ends—By cutting knots to a minimum it enables the operator to take care of more speed without increasing his work.
Makes
Better Yarn
A smoother, rounder, fuller, stronger and cleaner yarn is produced. Uniform yardage is obtained by both front and back rollers running at the same speed.

These facts are not mere claims. They may be substantiated by leading mills in United States and Canada. Let us furnish testimonials and data. For further information reverse charges on long distance phone call, or write.

WEST POINT FOUNDRY & MACHINE CO.
(Batson-Cook Company, Owners)
WEST POINT, GEORGIA



we asked for it

ON JANUARY 28 we sent out ballots asking our customers to comment and express opinions about certain phases of our Supply Parts business.

Within ten days we had returns from over 10 per cent . . . and the ballots are still coming in.

Reproduced on this page are typical comments. You will notice not all are "bouquets" . . . indeed we welcome the "brick-bats" as they help us to improve our service and to clear up misunderstandings.

If you have not returned your ballot please do . . . if you did not receive a ballot, write us and we will see that you get one.

Next month we propose to publish a two-page advertisement on Supply Parts based on the completed returns.

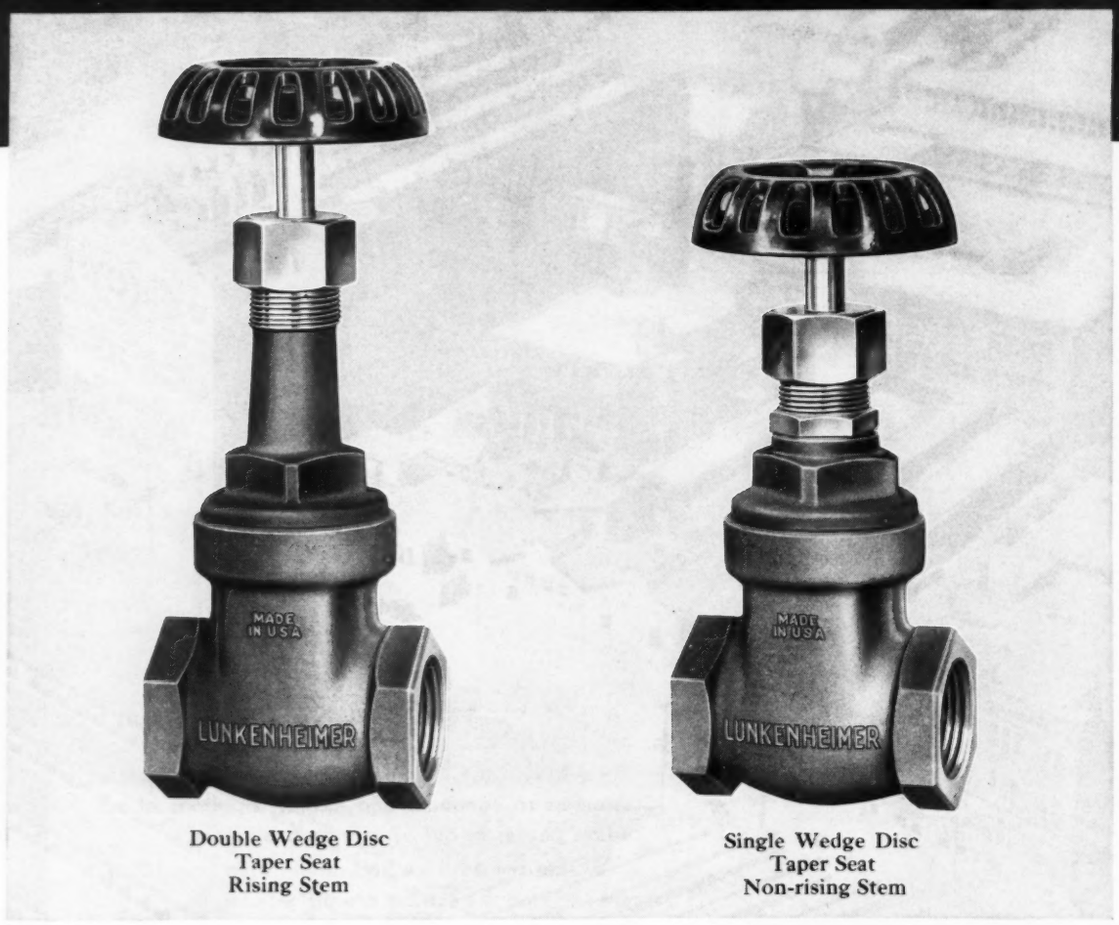
CROMPTON & KNOWLES LOOM WORKS

WORCESTER, MASS.

ALLENTOWN, PA. - PHILADELPHIA, PA. - CHARLOTTE, N. C.

CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R.I.

LUNKENHEIMER 125 lb. SP BRONZE GATE VALVES



Double Wedge Disc
Taper Seat
Rising Stem

Single Wedge Disc
Taper Seat
Non-rising Stem

These two valves offer many advantages to users of 125 lb. SP bronze gate valves.

Their design provides unusual strength and ruggedness—accurate machining is to close tolerances—materials exceed accepted standards. In short they possess the inherent quality, characteristic of all Lunkenheimer Valves, which means they will stay tight and will give added values in long service life and low cost upkeep.

For detailed design and construction features write for circular No. 544 shown below or ask your Lunkenheimer distributor for a copy.

THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U. S. A.
NEW YORK CHICAGO
BOSTON PHILADELPHIA
EXPORT DEPT. 318-322 HUDSON ST., NEW YORK

BOILER MOUNTINGS — LUNKENHEIMER VALVES — LUBRICATING DEVICES

11012-40-10

Over 25 Years of Experience in Evaporative Cooling

WHEN you install an evaporative cooling and humidifying system, you want to be certain that it has been properly designed and that it will efficiently and exactly meet your particular requirements.

You have such assurance when the system installed is a Sturtevant. For Sturtevant Systems are the product of over 25 years of experience in designing and building Evaporative Cooling and Humidifying Equipment for the textile industries. It is a highly specialized experience — supplemented by over 75 years of air engineering background.

WHAT STURTEVANT SYSTEMS DO—1. In the summer—they ventilate, cool and humidify; 2. In the winter—they ventilate, heat and humidify.

WHAT ARE THE RESULTS?—1. Proper regain accurately maintained at all times; 2. Reduced operating costs; 3. Improved product quality; 4. Elimination of "window opening and closing" nuisance; 5. No more "wetting down" troubles; 6. Better working conditions for employees; 7. Increased employee efficiency.

Our nearest office would welcome your inquiry.

THE COOLING AND AIR CONDITIONING DIVISION
B. F. STURTEVANT COMPANY • *Hyde Park, Boston, Mass.*
ATLANTA · CAMDEN · CHICAGO · GREENSBORO · LOS ANGELES · NEW YORK

Sturtevant
REG. U. S. PAT. OFF.
Puts Air to Work

Commercial Credit Company

Baltimore

Twenty Sixth Annual Consolidated Financial Report

AS OF DECEMBER 31, 1937

ASSETS

Cash		$ 28,077,827.23
Motor Lien Retail Time Sales Notes	$155,015,564.40	
Motor Lien Wholesale Notes and Acceptances	60,740,756.14	
Industrial Lien Retail Time Sales Notes	57,795,609.16	
Open Accounts, Notes and Factoring Receivables	33,893,956.19	307,445,885.89
Sundry Accounts and Notes Receivable		740,537.05
Customers' Liability on Foreign Drafts and Letters of Credit (Contra)		138,683.77
Repossessions in Companies' possession at depreciated values:		
Motor Cars	$ 145,112.22	
Other than Motor Cars	16,689.83	161,802.05
Investments:		
Sundry Marketable Securities at book value (market value $442,379.50)	$ 414,935.13	
Investment Securities held by American Credit Indemnity Company of New York, at market value	4,775,710.42	5,190,645.55
Deferred Charges:		
Interest and Discount Prepaid, etc.	$ 1,103,024.37	
Unamortized Debt Discount and Expense	820,288.00	1,923,312.37
Furniture and Fixtures		4.00
		$343,678,697.91

LIABILITIES

Unsecured Short Term Notes (Subsidiaries $6,496,155.88)		$171,786,655.88
Accounts Payable:		
Credit Balances of Manufacturers and Selling Agents held by Factoring Subsidiaries	$ 2,164,214.51	
Sundry, including Accruals, Federal and other Taxes	6,123,728.72	8,287,943.23
2¾% Debentures due 1942	$ 35,000,000.00	
3¼% Debentures due 1951	30,000,000.00	65,000,000.00
Contingent Liability on Foreign Drafts and Letters of Credit (Contra)		138,683.77
Contingent Reserves:		
Margin due Customers only when Receivables are collected.	$ 6,054,633.01	
Dealers' Participating Loss Reserves	6,268,432.59	12,323,065.60
Reserves for:		
Possible Losses and Contingencies	$ 5,226,991.37	
American Credit Indemnity Company of New York, Reserves required by Insurance Regulations, plus Voluntary Reserves of $500,000	1,122,606.64	
Deferred Income and Charges (unearned)	15,121,208.85	21,470,806.86
Capital Stock and Surplus:		
Minority Interests (Common Stock and Surplus—Subsidiaries)	$ 44,668.00	
Preferred Stock, $100 par value		
499,646 shares authorized—121,948 shares outstanding designated as:		
4¼% Cumulative Convertible	12,194,800.00	
Common Stock, $10 par value:		
(3,000,000 shares authorized—1,840,900 full shares and 1,094 shares of fractional scrip outstanding)	18,419,940.00	
Capital Surplus	$17,964,493.87	
Earned Surplus	16,047,640.70	34,012,134.57
		64,671,542.57
		$343,678,697.91

Summary of Operations

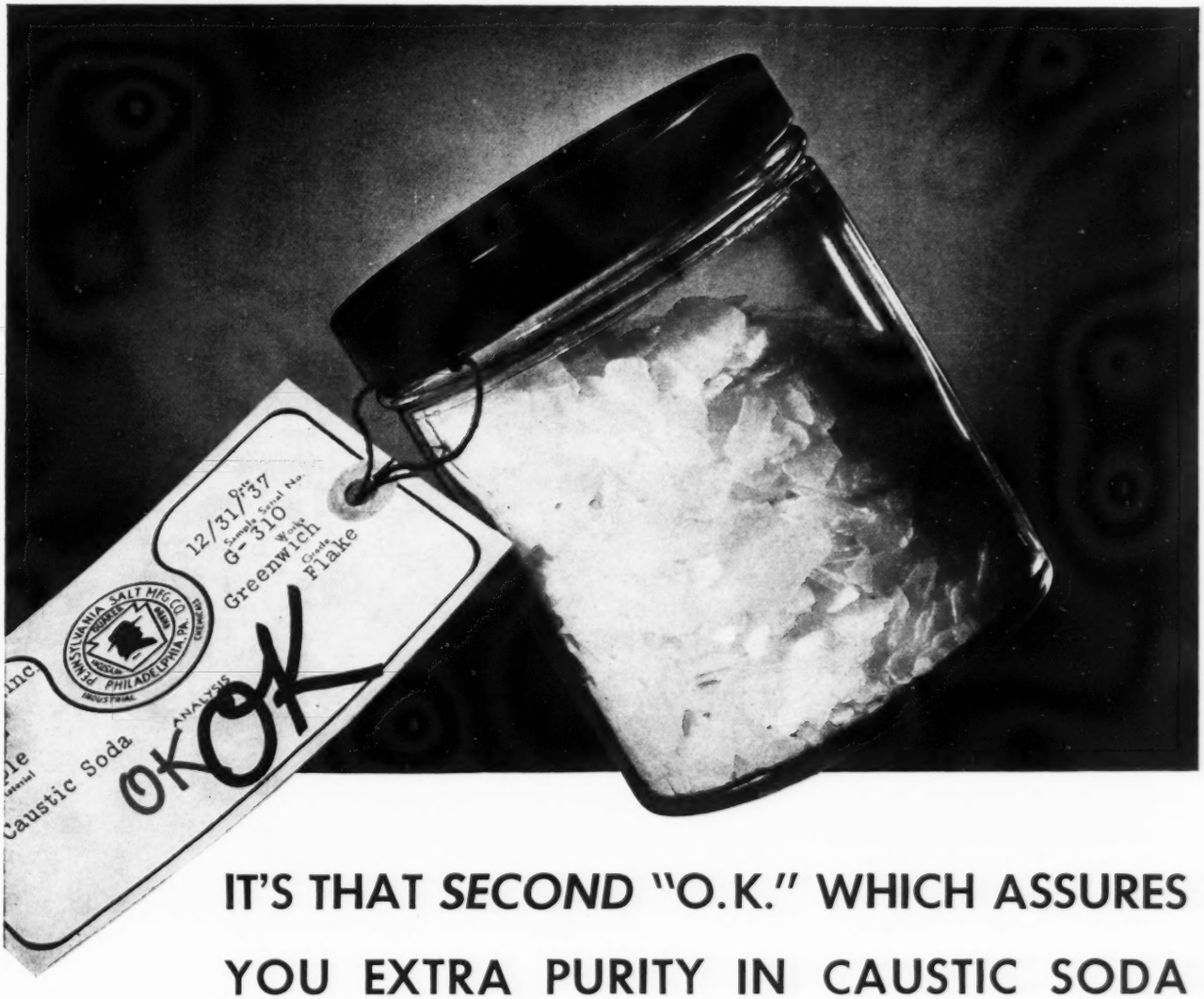
	Year Ended Dec. 31, 1937
Gross Receivables Purchased	$933,854,331.85
Gross Operating Income	$ 33,966,634.46
Sundry Income	700,218.37
Gross Income	$ 34,666,852.83
Operating Expenses:	
Officers, Employes and Agents Salaries, Commissions and special compensation	7,426,642.70
Taxes (except Federal Income and Undistributed Profits)	787,025.19
Management Expenses	6,646,659.03
Reserves for Losses in Excess of Net Losses (Credit)	912,635.55
Net Income before Interest and Discount	$ 20,719,161.46
Interest and Discount Charges	3,781,604.71
Reserve for Federal Income Taxes	2,916,609.59
Net Income from Operations	$ 14,020,947.16
Less Net Income for Minority Interests	4,844.55
Net Income on Capital Stocks of Commercial Credit Company	$ 14,016,102.61
Reserve for Federal Surtax on Undistributed Profits	422,983.50
Net Income credited to Surplus	$ 13,593,119.11

	1937	1936
Interest and Discount Charges—Times Earned	5.47	8.50
After Federal Surtax on Undistributed Profits:		
Net Income per share on 4¼% Cumulative Convertible Preferred Stock outstanding at end of period	$111.46	$97.84
Dividend Requirements on 4¼% Cumulative Convertible Preferred Stock outstanding at end of period—Times earned	26.20	23.02
Net Income per share on Common Stock, including scrip, outstanding at end of period	$7.09	$6.07

Analysis of Earned Surplus

Net Income credited to Surplus	$ 13,593,119.11
Excess Reserves on closed banks returned to Earned Surplus	41,828.22
Total	$ 13,634,947.33
Less dividends paid in cash on:	
4¼% Cumulative Convertible Preferred Stock	518,752.87
Common Stock ($4 and $1.50 extra per share)	10,123,656.50
Transferred to reserve for depreciation of securities to market value (American Credit Indemnity Company of N. Y.)	374,424.38
Furniture and Fixtures written off	359,825.20
Total	$ 11,376,658.95
Net Surplus Credit for period	$ 2,258,288.38
Earned Surplus Balance, beginning of period	13,789,352.32
Earned Surplus Balance, end of period	$ 16,047,640.70

Commercial Credit Company conducts a highly specialized form of commercial banking through the purchase of receivables created by the sale of merchandise from the manufacturer to the consumer. It purchases current open accounts from manufacturers and wholesalers, who collect the accounts as usual, and limit their credit losses. Its subsidiaries, Textile Banking Company, Inc., and Edmund Wright Ginsberg Corporation, New York, offer "Factoring" service, under which they purchase and collect accounts, assuming all credit risk. Its subsidiary, American Credit Indemnity Company of New York offers "Credit Insurance" which reimburses credit losses in excess of an agreed percentage on annual sales, and guarantees specific accounts. The Company specializes in time payment financing of automobiles, refrigerators, heating equipment, radios, Diesel engines, time and labor saving machinery and other articles of a durable nature.



IT'S THAT *SECOND* "O.K." WHICH ASSURES YOU EXTRA PURITY IN CAUSTIC SODA

Working closely with cotton textile and rayon manufacturers, Pennsylvania Salt Manufacturing Company understands well the need for purity in the Caustic Soda you use. It is natural that we should take exceptional care to guard the purity of our product by setting a high manufacturing standard.

But that is only the beginning, for we have developed an additional process—a double purification—that results in electrolytic Caustic Soda low in salt content and extremely low in iron. When this product has received its second "O. K." you know that it will meet your most exacting requirements.

It is supplied in aqueous solution in 8,000 gallon tank cars as well as in solid, flake, or ground form in drums. Our technical staff is always ready to help in all problems of pumping, piping, and dissolving. Why not write us today, and let us discuss your problems?

PENNSYLVANIA SALT MANUFACTURING COMPANY · *Est. 1850* · **WIDENER BLDG., PHILA., PA.**

NEW YORK CHICAGO ST. LOUIS PITTSBURGH TACOMA WYANDOTTE

TRADE MARK

PENNSYLVANIA SALT *Chemicals*

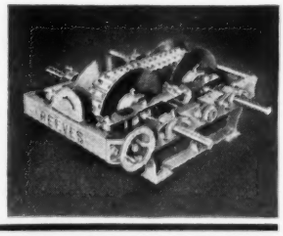
• Pictured above is a battery of slashers in a large southern mill. Uniform sizing and drying of the warp—to prevent stretch, matting and end breakage—are accomplished with a REEVES Variable Speed Transmission on each unit. . . . Here, as in practically every other textile operation, REEVES Speed Control has become the accepted method to provide quick, easy, and accurate *accommodation* of machine speeds to varying conditions, materials, and processes. . . . Leading manufacturers of textile machinery, appreciating that the reputation of any machine is judged by its performance on the job, include REEVES Variable Speed Control as standard equipment. Machines in service may be modernized by the application of one or more of the three basic REEVES Units. Our engineers are at your service, without obligation. Write us.

REEVES PULLEY CO., Dept. T., COLUMBUS, INDIANA

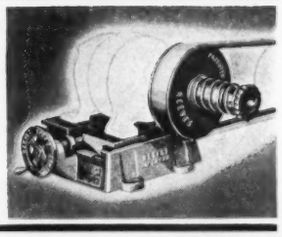
REEVES SPEED CONTROL

THE 3 BASIC REEVES UNITS

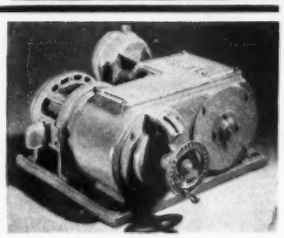
VARIABLE SPEED TRANSMISSION. Provides infinite speed adjustability over wide range. Accurate and positive at all speeds. Modern, compact open and enclosed designs, vertical and horizontal. Fifteen sizes—fractional to 100 h. p. Speed variations from 2:1 to 16:1 inclusive.



VARI-SPEED MOTOR PULLEY. Simplified development of Transmission. Mounts on standard shaft of any constant speed motor. Forms direct drive to machine. Sliding motor base is moved forward or back for speed changes. Seven sizes—fractional to 7½ h. p.; 3:1 range of variation.



VARI-SPEED MOTODRIVE. Combines in one compact, self-contained enclosure, constant speed motor, REEVES speed varying mechanism and reduction gears (where required). Available in space-saving horizontal and vertical types—¼ to 10 h. p. Speed variations 2:1 to 6:1 inclusive.



Perky Prints

STAY BRIGHTER LONGER

when the fabric is finished with "AVITEX"

ONCE AGAIN you're bringing out a vivid variety of gay summer fabrics. Greeting the season with colors and patterns brighter and sharper than ever before.

Will these fabrics still be mill-fresh...the whites white, the colors bright...when it's time for Mrs. America to buy? Yes, if you've used "Avitex" finishing agents.

You can always depend on "Avitex" to prevent air oxidation and dealer complaints. Yellowing or unpleasant odors don't develop even after long periods of storage.

"Avitex" gives you finer finishing for cotton, linen or rayon...without increasing your present finishing costs. Our nearest office will gladly show you how. Write.

DU PONT
REG. U. S. PAT. OFF.

AVITEX
REG. U. S. PAT. OFF.

TEXTILE FINISHING AGENTS

E. I. DU PONT DE NEMOURS & CO., INC.
Fine Chemicals Division, Wilmington, Delaware

SALES OFFICES:
Boston, Mass., Charlotte, N. C., Chicago, Ill., New York, N. Y., Philadelphia, Pa., Providence, R. I. and San Francisco, Calif. Represented in Canada by Canadian Industries Limited, Box 1260, Montreal, Quebec, and 372 Bay Street, Toronto, Ontario.

KEEP QUALITY "IN THE CLEAR"...

with Detail-Revealing Mercury Light

(*Above*) Cooper Hewitt lamps provide detail-revealing light in this plant for inspection of fine woolens.

• • •

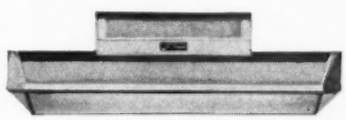
(*Right*) The daylight effect of Combination "Skylight" units in this prominent South Carolina mill increases accuracy of inspection and shading.

Right now, it takes *extra* quality to keep your product ahead of the field. Detecting and eliminating tiny defects is more important than ever. That's why foresighted textile plants have decided that good seeing is *always* good business . . . that it pays its way as "reputation-insurance" whether production rates are high or low.

Now, too, with the new Cooper Hewitt lamps . . . 22% more efficient than previous types . . . soft, detail-revealing light for inspection or production areas is less expensive than ever before. Or, if color problems are important in your inspection routine, the combination "skylight" units meet critical requirements.

To keep quality "in the clear," why not talk over your immediate or long range plans with a representative who knows the economics as well as the engineering of modern textile mill lighting? General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, New Jersey.

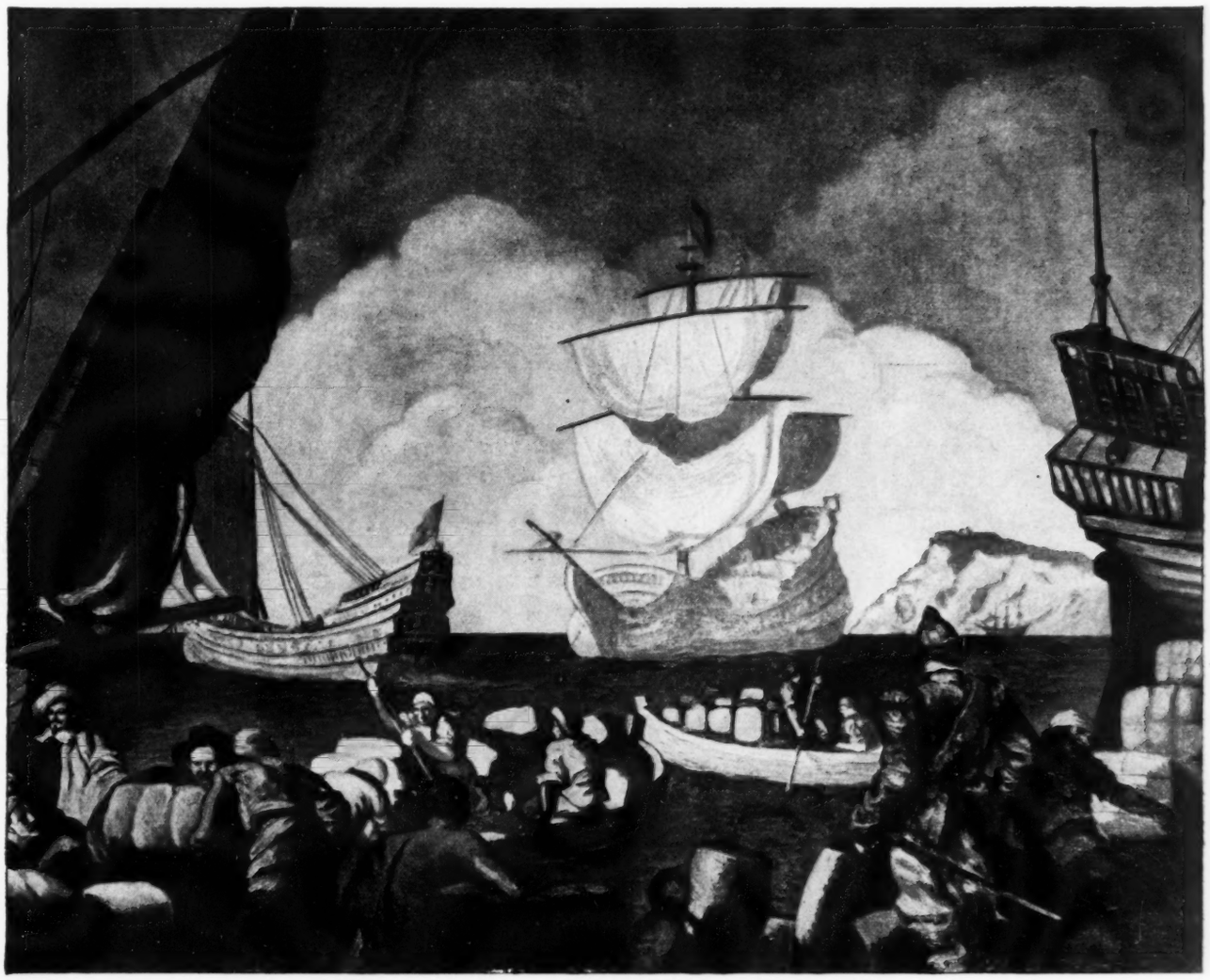
The new Cooper Hewitt Mercury Vapor Lamp starts instantly . . . hangs on a true horizontal . . . and gives the same light output on 22% less wattage than previous types. It provides a soft, detail-revealing light of unexcelled quality for non-fatiguing seeing.



In the General Electric Combination "Skylight," mercury vapor light is additively balanced by incandescent light to provide a color-corrected synthetic daylight. Bulletin 521 gives complete details.

GENERAL ELECTRIC VAPOR LAMP COMPANY

877C



Seventeenth century Spaniards loading Barilla for shipment to France.

During the Middle Ages, alkalies were used extensively throughout Europe in the manufacture of soap and glass. One of the most important sources of soda was the ashes of a fleshy plant called Barilla, grown along the seashores of Mediterranean countries. Spanish Barilla was preferred by manufacturers until the close of the 18th Century when soda made from brine by the LeBlanc process began to supplant it.

Through The Centuries With Alkalies

Today, an impressive list of American manufacturers find their chief source of supply for Soda Ash, Caustic Soda, and other alkalies in the great Barberton plant of THE COLUMBIA ALKALI CORPORATION. This preference is not due to coincidence, but to the cold logic of careful purchasers who have found by long experience that COLUMBIA delivers quality and value.

SODA ASH
CAUSTIC SODA
SODIUM BICARBONATE
MODIFIED SODAS
LIQUID CHLORINE
CALCIUM CHLORIDE

COLUMBIA

THE COLUMBIA ALKALI CORPORATION

BARBERTON • OHIO

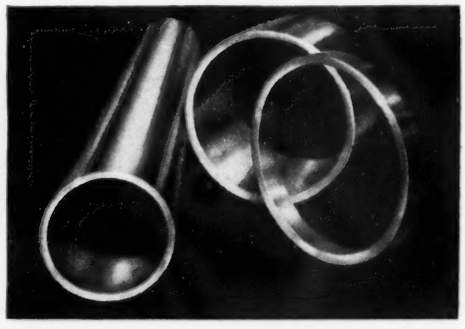
NEW YORK CHICAGO BOSTON PITTSBURGH
CLEVELAND CINCINNATI ST. LOUIS MINNEAPOLIS

AN ARMOR OF MONEL...

...can also protect your ROLLS

Monel covered cast-iron roll 12" diameter x 44" face. This roll used as a color preparer roll handling caustic color solution. Monel covering fabricated by Youngstown Welding & Engineering Co., Youngstown, Ohio, using customer's old cast-iron roll.

(Below) Monel covered aluminum rolls 4½" and 8" dia., other sizes available, or with cast-iron, steel, etc. Where rolls are required having lightness combined with resistance to wear and corrosion the Monel covered aluminum rolls often meet these requirements best.



Monel covering adds high wear and corrosion resistance to Cast Iron, Steel, Brass, Bronze and Aluminum rolls

What do you do with old, scored and worn rolls—re-condition them, or replace them? In either case, make sure of extra wear, longer life. Here's how you can do it—with notable economy:

By means of a patent protected process, Youngstown Welding and Engineering Co. of Youngstown, Ohio, can cover almost any size roll with Monel.* The Monel cover, formed from cold-rolled sheet, is stronger and tougher than structural steel. Completely rust proof, and stoutly resistant to corrosion. This durable, wear resistant cover is securely anchored to the core and, for all practical purposes, made a part of the roll itself.

You can profit from this process on rolls for slashers, dye jigs, continuous dyeing and washing, printing machines and many other places in dyeing, bleaching and finishing operations. Furthermore, you can have Monel covers applied to rolls of any reasonable diameter and face. Examples: 6" to 42" and larger rolls have been covered with Monel, and a recent job of 15-inch diameter had a 21-foot face.

If you're looking for better performance from rolls, send us the details and let us advise you on Monel covered rolls. Write to:

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York, N. Y.

INCO MONEL

*Monel is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. This alloy is mined, smelted, refined, rolled and marketed solely by International Nickel.

WHY G-E BULBS GIVE MORE LIGHT THIS YEAR!

EACH year MAZDA lamps are brighter than they were the year before.

This means that the G-E bulbs of 1938 not only give more light than ever before . . . but they use no additional current, come to you at the lowest prices in history, and they STAY BRIGHTER LONGER.

Responsible for the recent increase in light output are MAZDA research developments and technical improvements made during the past twelve months. When you buy MAZDA lamps made by G-E, you are sure of getting lamps that represent the latest development in lamp manufacture.

When you buy lamps for your plant, use these new MAZDA lamps made by G-E . . . the kind that STAY BRIGHTER LONGER.

• • •

Most electric service companies will gladly measure the lighting in customers' plants free of charge. Check-ups of this kind often reveal that modern, sight-saving lighting more than pays its own cost by stopping profit leaks and by increasing efficiency. Phone your local electric service company today. Ask them to measure the lighting in your plant . . . to show you how better light can help increase your profits.

MAIL THIS COUPON FOR FREE BOOK

LEARN THE REAL FACTS ABOUT LAMP BULBS

General Electric Co., Dept. 166- C. Nela Park, Cleveland, Ohio.

Please send me free of charge your booklet "Plain Common Sense and Good Business" containing facts about MAZDA lamps.

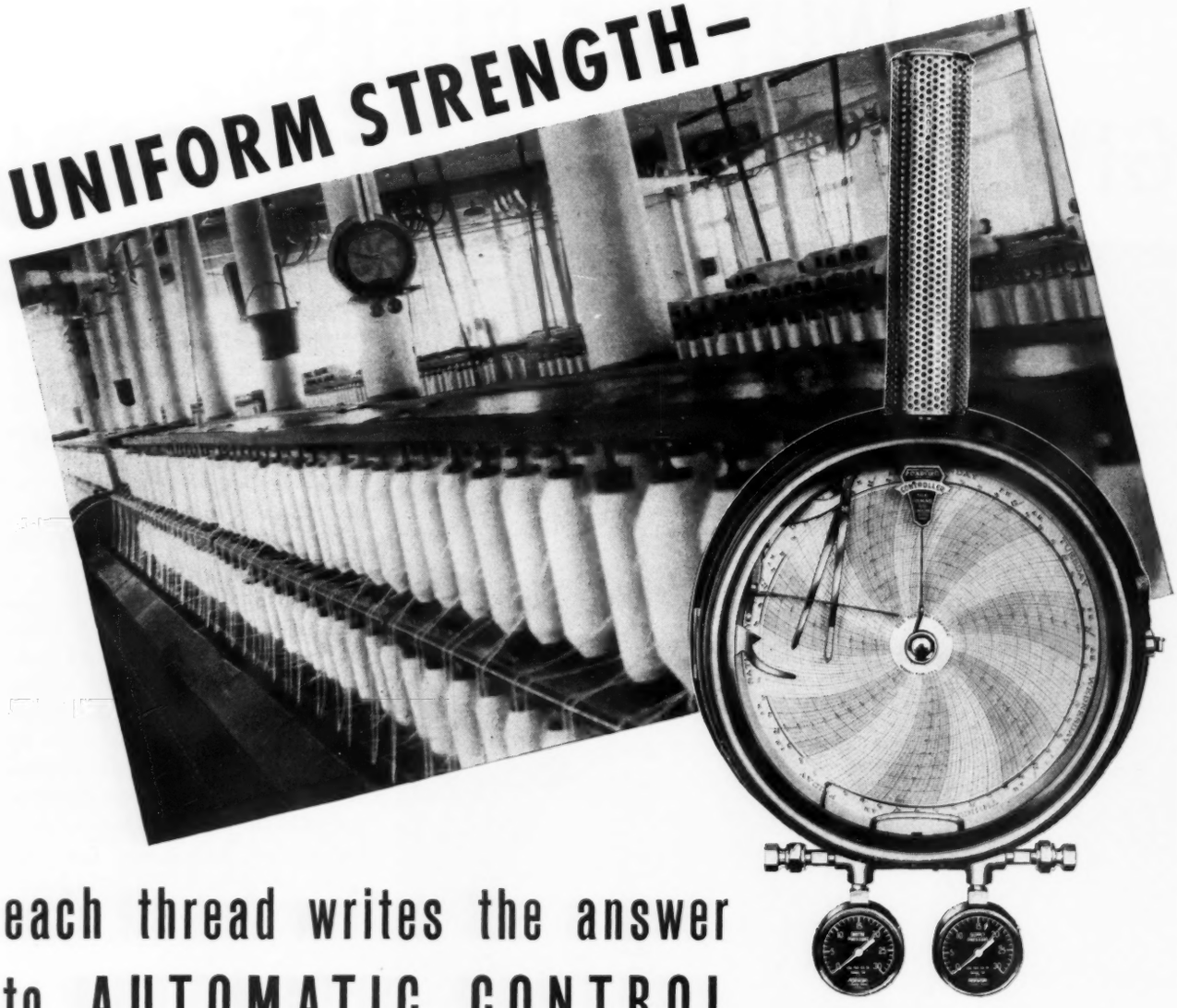
Name .....

Company .....

Street ..... *City* ..... *State* .....

GENERAL ELECTRIC

UNIFORM STRENGTH—



each thread writes the answer to AUTOMATIC CONTROL

Strong, flexible fibres, easily woven without becoming fluffy, without becoming charged with "static." They are readily attained with the aid of Foxboro Humidity Control. The ideal manufacturing atmosphere can be maintained day after day, winter and summer alike, with precision.

The correct regain will be maintained in the fibre during weaving. And the fibres will "lay up" so as to assure a uniformly fine bolt with Foxboro control.

Foxboro's intimate knowledge of textile requirements is at your service. Let our engineers be your consultants in effecting economies through intelligent instrument applications. Write to the Textile Division, The Foxboro Company, 18 Neponset Ave., Foxboro, Mass., U. S. A. . . . Atlanta Office: 161 Spring Street Building. Branch Offices in 25 Principal Cities.

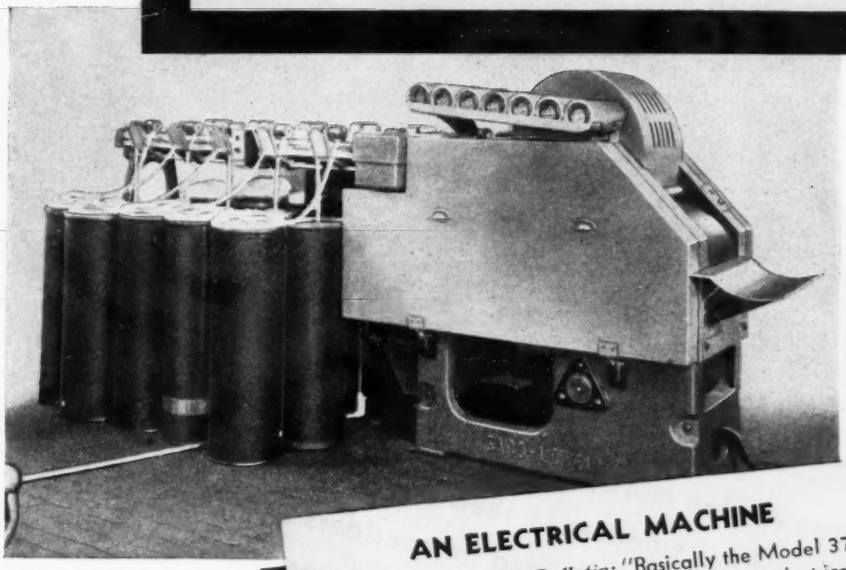
FOXBORO

REG. U. S. PAT. OFF.

Certified HUMIDITY CONTROL

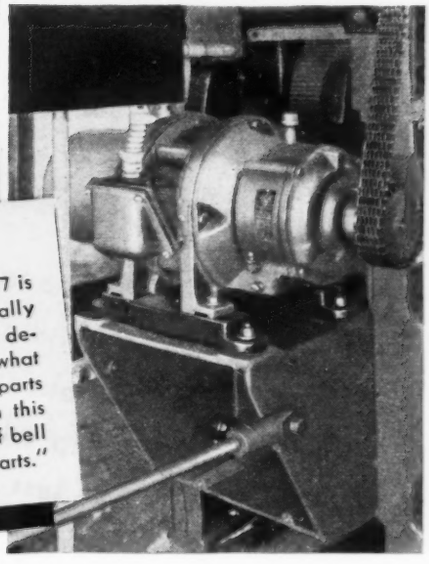
Saco-Lowell

Incorporates Complete Electrical System in High-speed, Precision Lap Winder



LEFT — With all moving parts enclosed, and with the electric drive and control built in, this Saco-Lowell Model 37 lap winder sets new standards of fast and uniform production

BELOW — G-E gear-motor with disk brake—a positive and smooth drive for the Model 37 and for many other textile machines



AN ELECTRICAL MACHINE

From the *Saco-Lowell Bulletin:* "Basically the Model 37 is self-contained, electrically controlled, and an electrically driven machine in which the mechanical parts have been designed and built around the electrical parts in contrast to what has generally been the practice of tacking the electrical parts on to a mechanical design. Designing the machine in this manner enabled us to eliminate the motley collection of bell cranks, sleeves, springs, pawls, catches, and other small parts."

SACO-LOWELL'S Model 37 is an outstanding development in a high-speed, precision lap winder. This lap winder, according to the manufacturer, while making laps of greater uniformity, produces 33 1/3 per cent more than any previous machine of this type.

In perfecting the Model 37, Saco-Lowell engineers drew upon the application experience of General Electric.

This combination has resulted in:

1. Increased productive capacity.
2. Yard-for-yard weights of unusual uniformity.
3. Simpler operation, with safety at a new high standard.
4. Elimination of numerous bothersome parts.

The Model 37 has a built-in drive and control system. Thus the electrical installation requires only the connection of power leads to put the machine into operation. Use of a disk-type brake on the motor makes possible positive braking without jarring the machine. Electric stop-motion control automatically and instantly stops the machine whenever an end breaks.

Whether you are building or installing machines, it will pay you to consult General Electric as to the correct electrical application. Inquire of the nearest G-E office, or write General Electric, Schenectady, N. Y.

GENERAL ELECTRIC

Filing No. 8623 011-319

TUFFER
Inserted-Eye HEDDLES
will not wear into a groove to chafe and break yarn

Here's the Tuffer Inserted-Eye Heddle with one-piece eye that gives more uniform cloth . . . constantly uniform and more production.

Here's an ordinary Heddle enlarged by the camera to show the groove that may cause chafing and broken ends.

The superintendent of a large woolen mill told one of our representatives that our Inserted-Eye Heddle has done wonders in their weave room. They have fewer stops from broken ends on their warps and he considers any mill foolish that does not equip all their looms with them. The work is more uniform and, besides, there are less "menders" in their cloth.

If you have never tried the Tuffer Inserted-Eye Heddles on your harnesses, you can save time, money, and labor, too.

Tuffer Inserted-Eye Heddles can be tailored to fit your exact requirements with any size and shape of center or end eye and in any size wire for your work. Send your specifications for samples and prices.

HOWARD BROS. MFG. CO.

HOME OFFICE AND FACTORY: WORCESTER, MASS.

Branch Offices: Philadelphia, Dallas

Southern Plant: 244 Forsythe St., Atlanta

Canadian Agents: Colwool Accessories, Ltd., Toronto 2, Canada

Products: Card Clothing for Woolen, Worsted, Cotton, Asbestos, and Silk Cards—Napper Clothing, Brush Clothing, Strickles, Emery Fillets, Top Flats Recovered and extra sets loaned at all plants—Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant—Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted-Eye and Regular Wire Heddles

DEB-E-LITE

the DEBEVOISE PAINT for the TEXTILE INDUSTRY

Why It Pays To Use DEB-E-LITE In Your Mill

DEB-E-LITE paints are designed by specialists in the manufacture of industrial maintenance paints . . . *and nothing else.* And because we sell direct to you, you can take advantage of our low wholesale prices.

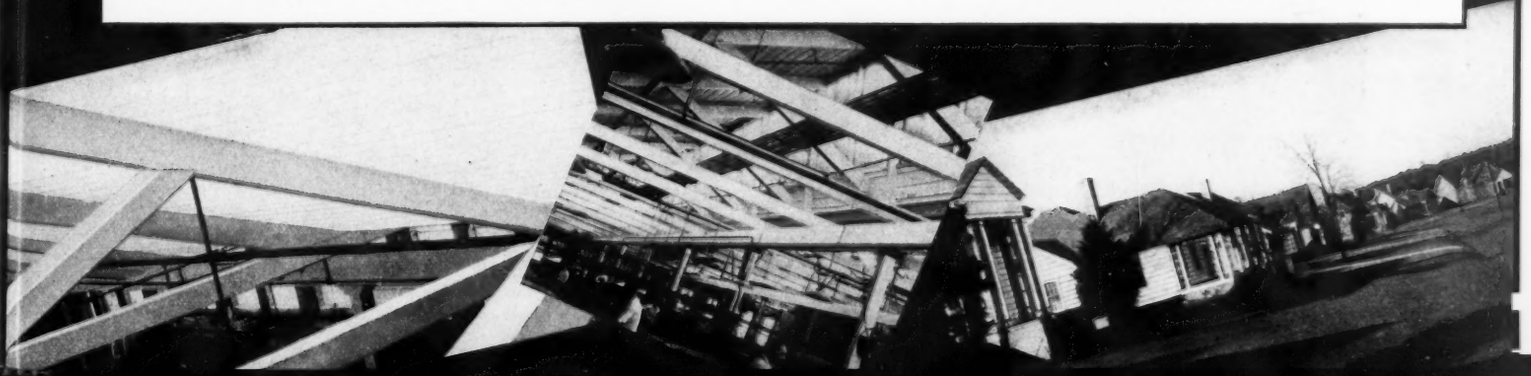
DEB-E-LITE *Inside* paints diffuse more light, stay white longer and are easier to keep clean.

DEB-E-LITE *Outside* paints for company buildings and employee houses insure a lasting attractive appearance and protection against weather, wear and industrial atmospheres.

Put DEB-E-LITE Paints to the test in your mill. When you see the service they give . . . efficient, long-lasting, economical . . . you'll agree that DEB-E-LITE Paints deserve the confidence they have won.

THE DEBEVOISE COMPANY
PAINT MAKERS

968-978 GRAND STREET
BROOKLYN, N. Y.



ANNOUNCING

SOMETHING NEW IN WARP SIZING

DRY

AHCO SIZE

FOR BETTER WEAVING . . A NEW

*SYNTHETIC WARP SIZING IN DRY FORM

*PATENT APPLIED FOR

ADVANTAGES:

1. MAKES BETTER WARPS
   (a.) Less Shedding (b.) No Foaming
2. COSTS LESS TO USE
   (a.) Highly concentrated (Less required)
   (b.) Lower Transportation Costs
   (c.) No Waste (Clean Floors, Pipes and Kettles)
3. EASY TO HANDLE
   (a.) Dry Form (b.) Convenient Packages

TRIAL LOT ON REQUEST

AHCO PRODUCTS

Arnold-Hoffman & Company, Inc.

Established 1815 . . . Plant at Dighton, Mass.

PROVIDENCE, RHODE ISLAND

NEW YORK BOSTON PHILADELPHIA CHARLOTTE

AT THE HEART
of the Textile Industry

A long step forward was taken when Allis-Chalmers engineers, after exhaustive study, perfected the Allis-Chalmers Quick Clean Motor—designed specifically for the textile industry.

Plugging, fouling and overheating are no longer problems—maintenance costs go down quickly, wherever Quick Clean Motors are installed. Actually self-cleaning, these motors expel lint and dust as fast as they enter—allowing them no foothold . . . requiring no workman to remove them.

Exclusive Allis-Chalmers features make this possible: glass-smooth surfaces to which lint and dust can't cling; big, roomy air passages to let them out; working parts completely dust-sealed.

Allis-Chalmers Quick-Clean Motors come in four sizes—5, 7½, 10 and 17 hp. Standard N.E.M.A. mounting dimensions.

The Allis-Chalmers Manufacturing Company builds standard motors of every type from 1 hp. up—also motors for special application

864

MOTOR DIVISION

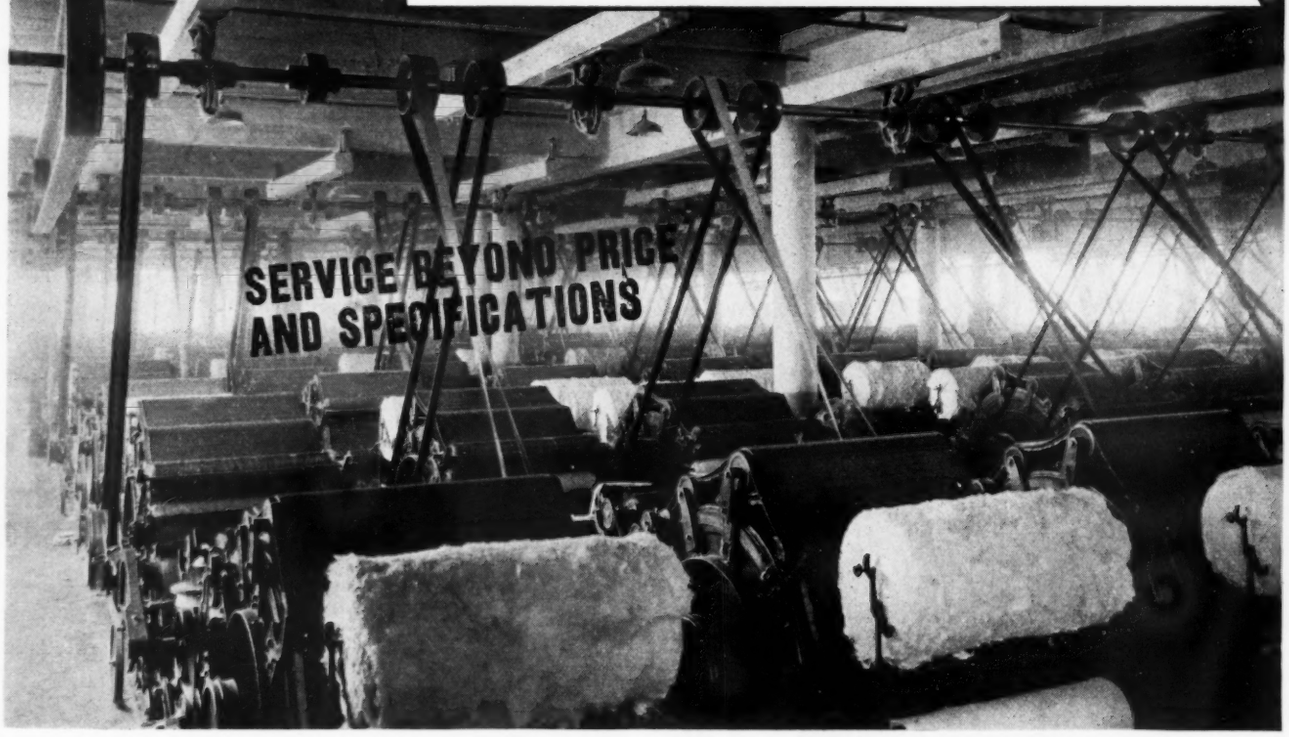
ALLIS·CHALMERS

MILWAUKEE WISCONSIN

TEXTILES

MAKE A BETTER BELT FOR THE TEXTILE INDUSTRY

in U. S. ROYAL JR.



***Write* FOR YOUR FREE COPY** *of the U. S. Transmission Belt Album . . . with case histories, problems, applications . . . U. S. belts at work and in the making.*

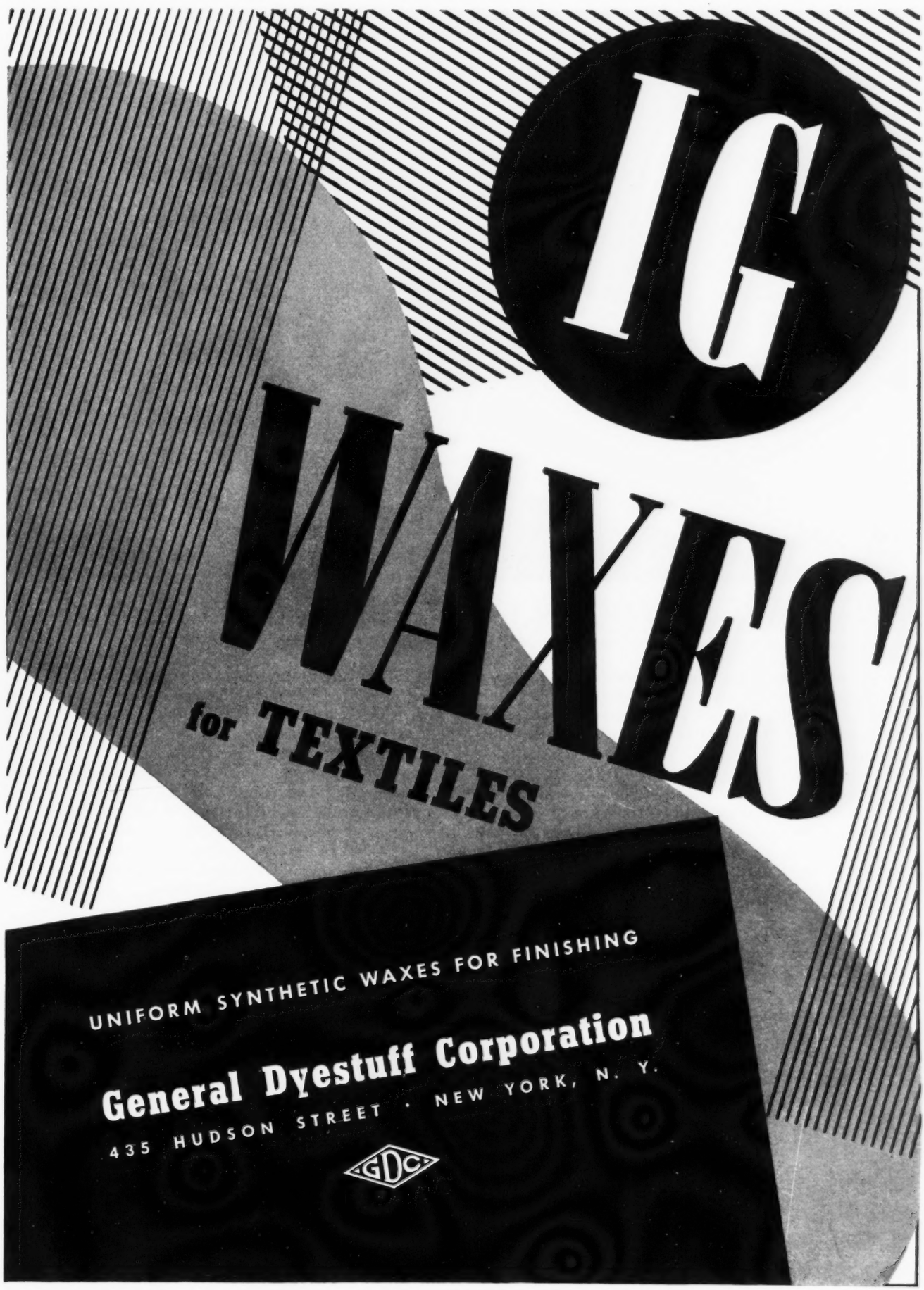
● Every foot of U. S. Royal Jr. Transmission Belting is made-to-order for textile mill drives. Flexible layers of tough cotton duck, thoroughly impregnated with specially compounded live rubber . . . for powering cards, spinners, and looms. It's a light, flexible, and elastic belt . . . that runs steadily and true despite high speeds . . . crossed drives . . . frequent shifting. Operators like its easy feel . . . its quick responsiveness! Mill superintendents order Royal Jr. because of its wide range of application . . . because it requires a minimum of care . . . because it invariably gives you Service Beyond Price and Specifications.

UNITED STATES RUBBER COMPANY · US · TRADE MARK

TUNE in on Ben Bernie—C.B.S. Wednesday Evenings on the U. S. Rubber Royal Master Tire Program with an all star cast. 9:30 E.S.T., 8:30 C.S.T., 7:30 M.S.T., 6:30 P.S.T.

United States Rubber Company

United States Rubber Products, Inc., New York, N. Y.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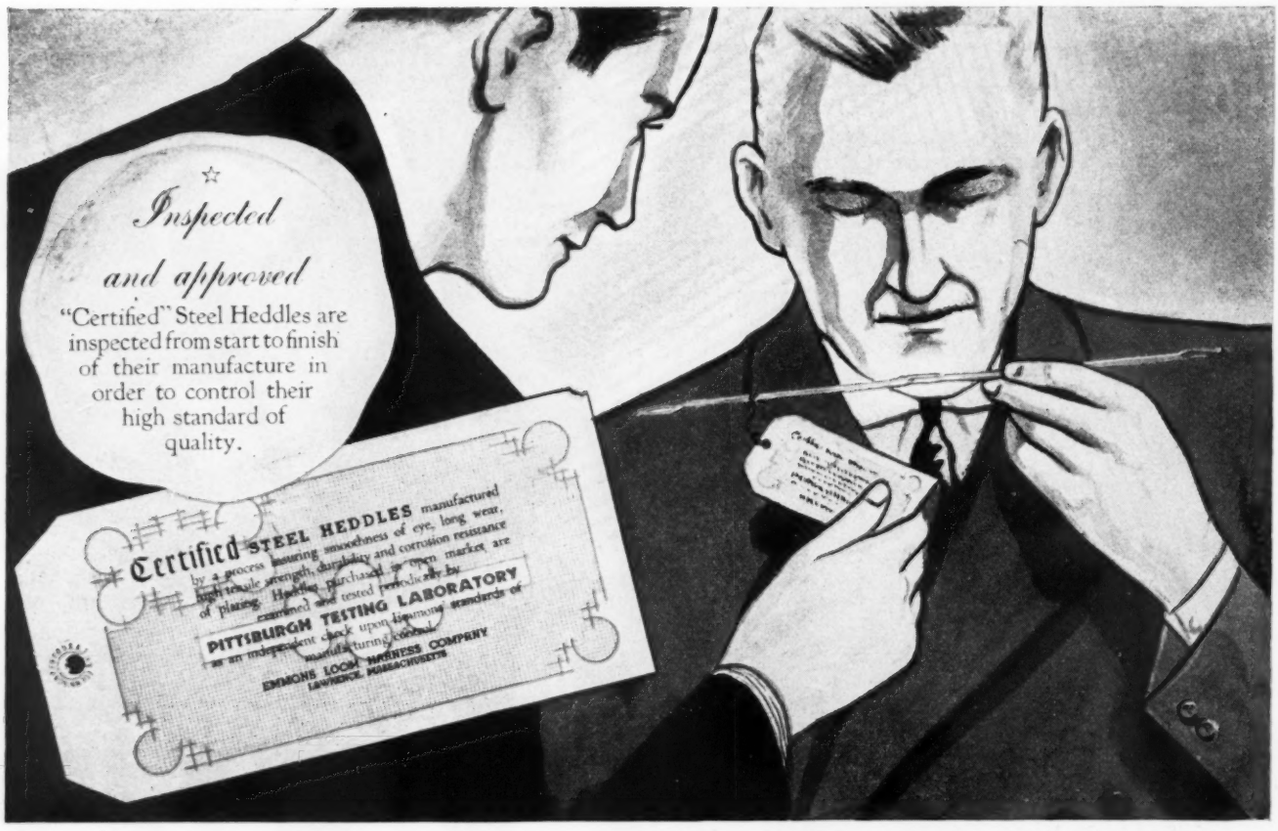
WAXES
for TEXTILES
UNIFORM SYNTHETIC WAXES FOR FINISHING
General Dyestuff Corporation
435 HUDSON STREET · NEW YORK, N. Y.
GDC


Inspected
and approved
"Certified" Steel Heddles are inspected from start to finish of their manufacture in order to control their high standard of quality.
Certified STEEL HEDDLES manufactured by a process insuring smoothness of eye, long wear, high tensile strength, durability and corrosion resistance of plating. Heddles purchased in open market are examined and tested periodically by
PITTSBURGH TESTING LABORATORY
an independent check upon Emmons standards of manufacturing control.
EMMONS LOOM HARNESS COMPANY
LAWRENCE, MASSACHUSETTS

Weaving Quality DOUBLY PROTECTED at NO EXTRA COST

Every manufacturing operation on Emmons "Certified" Steel Heddles is carefully checked — every heddle shipment is inspected. That's *inside* Control of Quality. But we're not content with that alone. To check on our own standards of control, we have the famous Pittsburgh Testing Laboratory buy heddles in the open market, make their *own* independent tests, report back to us.

That way, we're *sure* of our quality — and you can be sure of the quality you get by buying Emmons "Certified".

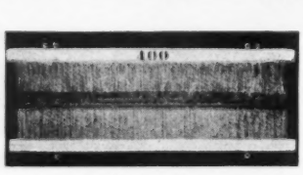
The points that both Emmons and Pittsburgh Testing look for are: Eye Smoothness; Tensile Strength; Durability of Plating; Corrosion Resistance of Plating — all of them add up to what you want most: smoother weaving over a longer period of time.

So — be right by buying right. Order the heddles with the "Certified" Tag and the Inspected & Approved Seal. We always have stocks on hand, suggest you telephone or telegraph your order — *collect*, if you need fast shipment. Emmons Loom Harness Company, Lawrence, Mass.

Emmons

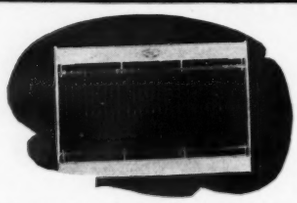
"CERTIFIED" STEEL HEDDLES

EMMONS LOOM HARNESS COMPANY ★ LAWRENCE. MASS



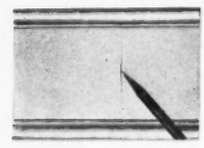
CHAFELESS CORD COTTON HARNESS

Long staple cotton, given 5 smooth coats of specially prepared varnish, baked for 48 hours. Humidity proof. Super smooth. Strong as Gibraltar.



TUBULAR ALUMINUM HEDDLE FRAMES

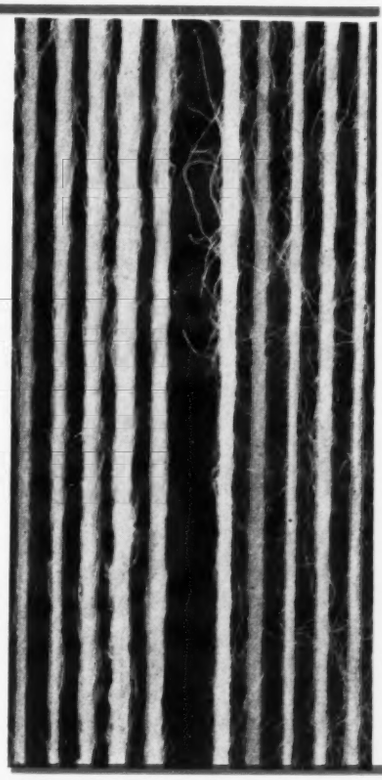
Life-long rigidity. No friction on warp yarns. Heddle bars easily inserted or removed. Less wear on them. Less vibration. Ask for folder.



MULTIPLIED YARN SPACE REEDS

Dents polished 6 times, spaced accurately within 1-100th inch. Freer warp movement. No streaking from uneven spacing. All-metal or pitch-band.

ALL EMMONS PRODUCTS ARE LISTED IN TEXTILE WORLD YEARBOOK



Which warps would you run...

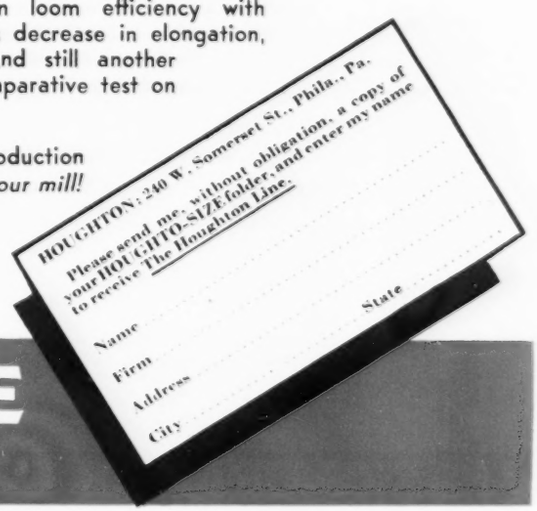
...if interested in profit..?

On the face of it, you would run smooth warps like the two on the left . . . because they have better fiber-lay . . . resulting in fewer loom-stops . . . higher weave-room efficiency and, therefore, *greater profit.*

However, fiber-lay is only one feature of proper sizing.. Increase in breaking strength, decrease in elongation and low kettle costs are equally important . . . and all obtained to an unsurpassed degree by HOUGHTO-SIZE.

Daily, from all over the country, mills are profiting through the use of HOUGHTO-SIZES . . . and reporting savings of 25% to 75% in kettle costs. One mill reports a 3% increase in loom efficiency with HOUGHO-SIZE. Another reports a 50% less decrease in elongation, as compared with a former sized warp. And still another claims 36% fewer loom stops after a long comparative test on 10 looms.

HOUGHTO-SIZE your warps for greater production . . . greater profits! Ask us to prove it . . . *in your mill!*


HOUGHTON: 240 W. Somerset St., Phila., Pa.
Please send me, without obligation, a copy of your HOUGHTO-SIZE folder, and enter my name to receive The Houghton Line.
Name
Firm
Address
City
State

E. F. HOUGHTON & CO.
PHILADELPHIA
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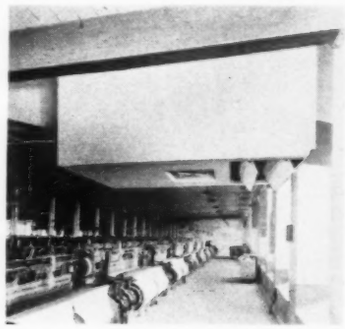
HOUGHTO-SIZE
FOR COTTON WARPS

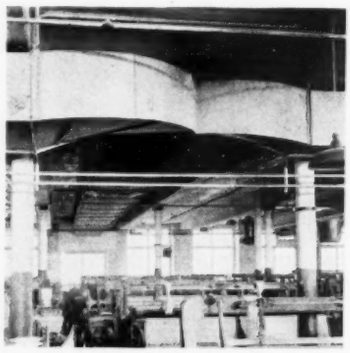
PARKS Automatic AIRCHANGER

designed to supplement your present humidifying system



HOW IT WORKS

1 Fan in this mixing chamber draws in air . . . and propels it forward. Air comes from outside (opening not shown) . . . or from room (opening at bottom) or at times from both.



2 Pushed forward through ducts at ceiling, the amount of outside air . . . or its mixture with inside air . . . is regulated and automatically balanced with evaporation.

3 Discharged through a series of duct outlets, air circulates throughout the room. Free moisture from humidifiers evaporates, heat is removed . . . and marked uniformity, particularly of humidity, results.

4 The "measured service" air...and with it much of the heat . . . escapes through a series of automatic exhaust shutters. With a slight pressure in the room, leakage is outward, increasing uniformity.

Parks Graduated Automatic Airchanger Regulation (Patented)

The only system that can regulate as below

Psychrostat

HUMIDITY LOW	Starts humidifiers Minimum incoming air
HUMIDITY ABOVE THE LOW / BELOW THE HIGH	Operates humidifiers Air change balanced
HUMIDITY HIGH	Maximum air change Humidifiers restricted

Bulletin 637 tells more

PARKS-CRAMER CO • FITCHBURG, MASS. • CHARLOTTE, N. C.

Color is an important characteristic of a textile starch. The photograph shows a Stein Hall chemist testing starch for color. By means of the photo-electric cell, the Colorimeter records for all time the exact degree of "whiteness" of any starch. Thus science controls still another of nature's variables.

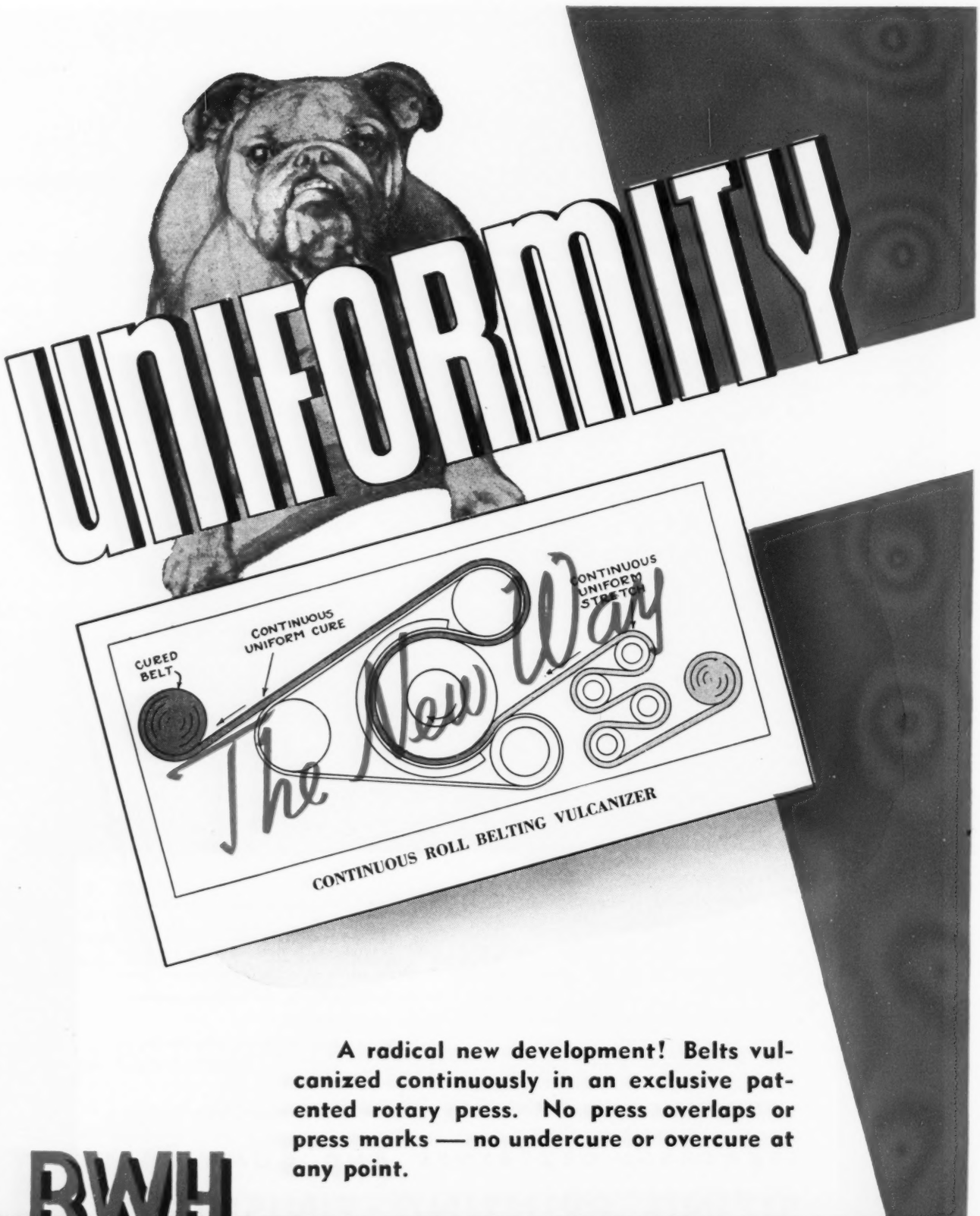
This test is typical of many employed in Stein Hall laboratories to insure the uniformity and quality of our starches, dextrines and gums. It is also typical of the close attention which the entire Stein Hall organization gives to the sizing, printing, and finishing problems of the textile industry.

If you have any problems, why not let us help solve them?

STEIN, HALL & COMPANY, INC. 285 Madison Avenue, New York

STARCHES, DEXTRINES AND GUMS FOR

SIZING · PRINTING · FINISHING



A radical new development! Belts vulcanized continuously in an exclusive patented rotary press. No press overlaps or press marks — no undercure or overcure at any point.

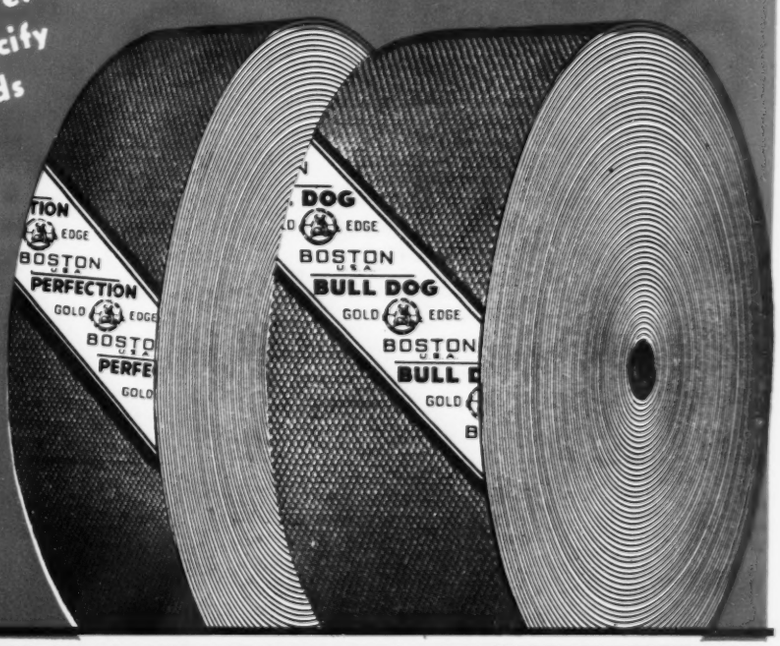
BWH

BOSTON WOVEN HOSE

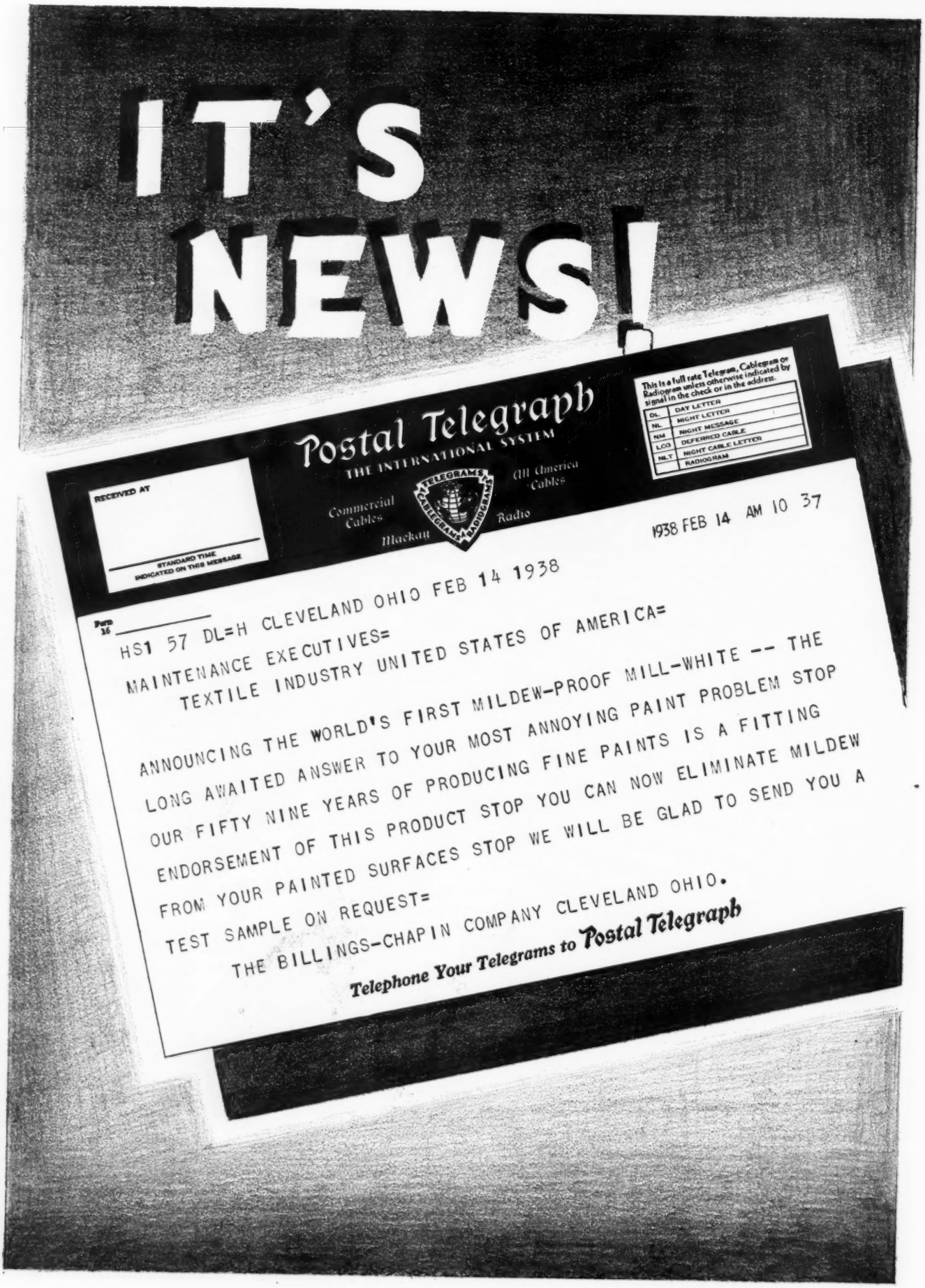
THE ROTOCURE PROCESS OF CONTINUOUS VULCANIZATION

FOR BWH RUBBER . . . TRANSMISSION BELTS

Boston Woven Hose is continually perfecting new and better methods for producing mechanical rubber goods. Bull Dog and Perfection Transmission Belts, vulcanized continuously, offer new values and extra service in transmission belting. Yet they cost no more than other first quality belts. Specify Bull Dog for heavy loads and severe service,— Perfection for high speeds and small pulleys.



AND RUBBER COMPANY BOSTON MASS.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Mackay Radio
All America Cables
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NM NIGHT MESSAGE
LCO DEFERRED CABLE
NLT NIGHT CABLE LETTER
RADIOGRAM
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ANNOUNCING THE WORLD'S FIRST MILDEW-PROOF MILL-WHITE -- THE LONG AWAITED ANSWER TO YOUR MOST ANNOYING PAINT PROBLEM STOP OUR FIFTY NINE YEARS OF PRODUCING FINE PAINTS IS A FITTING ENDORSEMENT OF THIS PRODUCT STOP YOU CAN NOW ELIMINATE MILDEW FROM YOUR PAINTED SURFACES STOP WE WILL BE GLAD TO SEND YOU A TEST SAMPLE ON REQUEST=
THE BILLINGS-CHAPIN COMPANY CLEVELAND OHIO.
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COTTON
SERVING THE
Textile Industries

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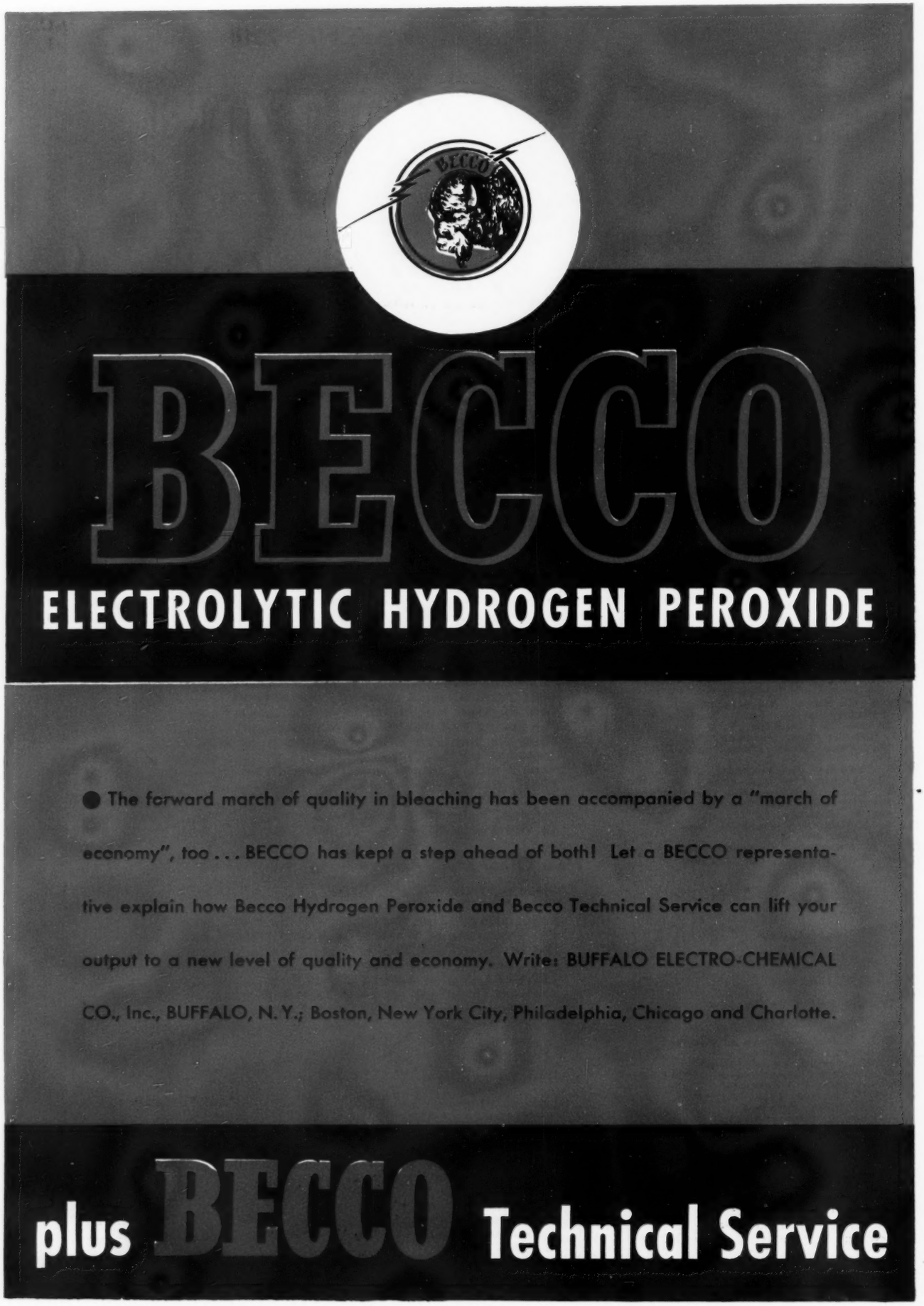
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SHORTS AND REMNANTS

Our Job

(Maybe you are not having any trouble finishing zippers, and maybe you don't want to buy a 6000 spindle cotton yarn plant or machinery for fishing seine, rope and twine. Maybe you don't have a speech to make or a training course to conduct on which you wish information. However, we believe you will understand the scope of our job better in looking over some typical letters which we are receiving regularly. Your comments on any of these letters or your own questions will be appreciated.)

◆

Wanted—6000 Spindle Cotton Mill

"The writer is interested in locating for some friends a very up to the minute 6,000 spindle cotton yarn plant; which specializes in the very best grade of carded yarns, running in numbers from about 7s to 16s singles and which are then plied into 2, 3, 4 and 5 plies as needed in the trade. This mill could be located either in the Carolinas or Georgia.

"The writer is acting as intermediary for the parties concerned and will ask that you forward the information to him in strictest confidence."

(Name withheld)

Note—COTTON was able to find two prospective locations for the above party. If you know a mill for sale answering anything like the above description, your letter to COTTON will be forwarded on to the proper parties.

◆

Talk on Safety

"Having read in your January issue in COTTON Magazine a story on Safety which was very good, I am writing to you to see if you could send me a five minute talk on Safety around Textile Plants."

GEORGE HADFIELD

J. & P. Coats
Valley Falls, R. I.

Note—Clippings of seven articles on safety, published recently in our columns, were furnished. Duplicates are available upon request.

◆

Knit Manufacturer Plans Training Course

"We are planning a training course for employees covering all processes involved in hosiery manufacture.

"We have been advised that you have published articles from time to time which are descriptive and educational along these lines and we would appreciate having you advise whether you have reprints of these articles and whether you could compile a set covering the different phases of hosiery manufacture, submitting a set to us with the understanding that if desirable, we could order a sufficient number of reprints to be used in this educational program."

H. V. W. SCOTT

Van Raalte Company
465 Getty Avenue
Paterson, N. J.

Note—Several knitting handbooks, taken from previous editorial pages of COTTON, and current reprints are available for such purposes.

◆

Twine Machinery

"Mr. _____, an executive of _____ Cotton Mills, is contemplating starting a business to manufacture fishing seine, rope and twine, and asked me to tell him what machinery would be necessary to make this twine and rope.

"I told him you would write him and give him the names of these manufacturers.

"If you don't have this information already in hand, you can probably get it from some of our old friends and subscribers."

W. A. MCGEE

COTTON
Charlotte, N. C.

Note—Haskell-Dawes Machine Company of Philadelphia makes twisters, Foster Machine Company, Universal Winding Company, C. G. Sargent's Sons make winding machinery. Any further suggestions to furnish this party will be forwarded on.

◆

Finishing Zippers

"We would like some information relative to the finishing of zippers and wonder if there is some specific machine manufactured for this purpose.

"Our problem is, of course, to stretch and finish these with the minimum amount of labor and investment."

Note—This inquiry referred to several mills, and comments will be carried in "How Other Men Manage Department". Any suggestions appreciated.

◆

COTTON, Serving the Textile Industries, will cover the entire industry in its presentation in the May TEXTILE ASSOCIATIONS' NUMBER, of the work and influence of the various trade associations serving each phase of manufacturing.

Textile manufacturers and operators will be interested in the scope of activity not only of their own associations but of those covering other branches of the industry, and the growing importance of such organizations in presenting a united front for solving textile problems is well known. An idea of the scope of the May Textile Associations' Number will be noted in the 16 major associations whose work will be covered in detail—American Cotton Manufacturers Association; American Association Textile Chemists and Colorists; Association of Cotton Textile Merchants; Cotton-Textile Institute; Durene Association of America; National Association Cotton Manufacturers; National Association of Finishers of Textile Fabrics; National Association Hosiery Manufacturers; National Association of Wool Manufacturers; National Knitted Outerwear Association; National Rayon Weavers Association; Silk Manufacturers Association; Southern Hosiery Manufacturers Association; Southern Textile Association; Underwear Institute and U. S. Institute for Textile Research.

Articles on Loom Fixing

"In your January or December issue of COTTON in OLD-TIMER'S article he was writing on loom fixing and the system that he used when he was running a section on inspecting various parts of the loom.

"As I am planning to have a meeting with loom fixers next week, I would like to get some copies of this article if they are available. My recollection is that in the past you have had such articles printed in pamphlet form for distribution. If you can send me 100 copies of this, or any other short article you might have which you think would be of value to loom fixers, I wish you would do so, enclosing invoice for these copies."

T. W. MULLEN

Vice President
Rosemary Manufacturing Company
Cotton Damasks
Roanoke Rapids, N. C.

Note—Reprints can be secured on "The Story of OLD-TIMER'S Methods of Working and Management" from February and March issues, and from the first two installments of "The Pleasure of Running a Section" from November 1937 and January 1938 issues, and "Methods of Fixing Looms", Articles 1 to 7 inclusive.

◆

Engineer Likes Modernization Editorial

"I have just been reading your editorial in the February issue of COTTON. I think this is a splendid editorial and tells a very important story in a concise and interesting way.

"It does seem to me that the Textile Industry is undergoing a severe test at the present time of its own morale. If it can maintain a reasonable schedule of wages and hours, there is no excuse for federal regulation, but if a considerable part of the industry breaks down and runs 60 hour shifts at starvation wages, as a few lone wolves have done, then we can count on the fact that we will have federal regulation with all its accompanying evils.

"I hope that you will keep this topic on your editorial pages in the next few months."

CHERRY L. EMERSON

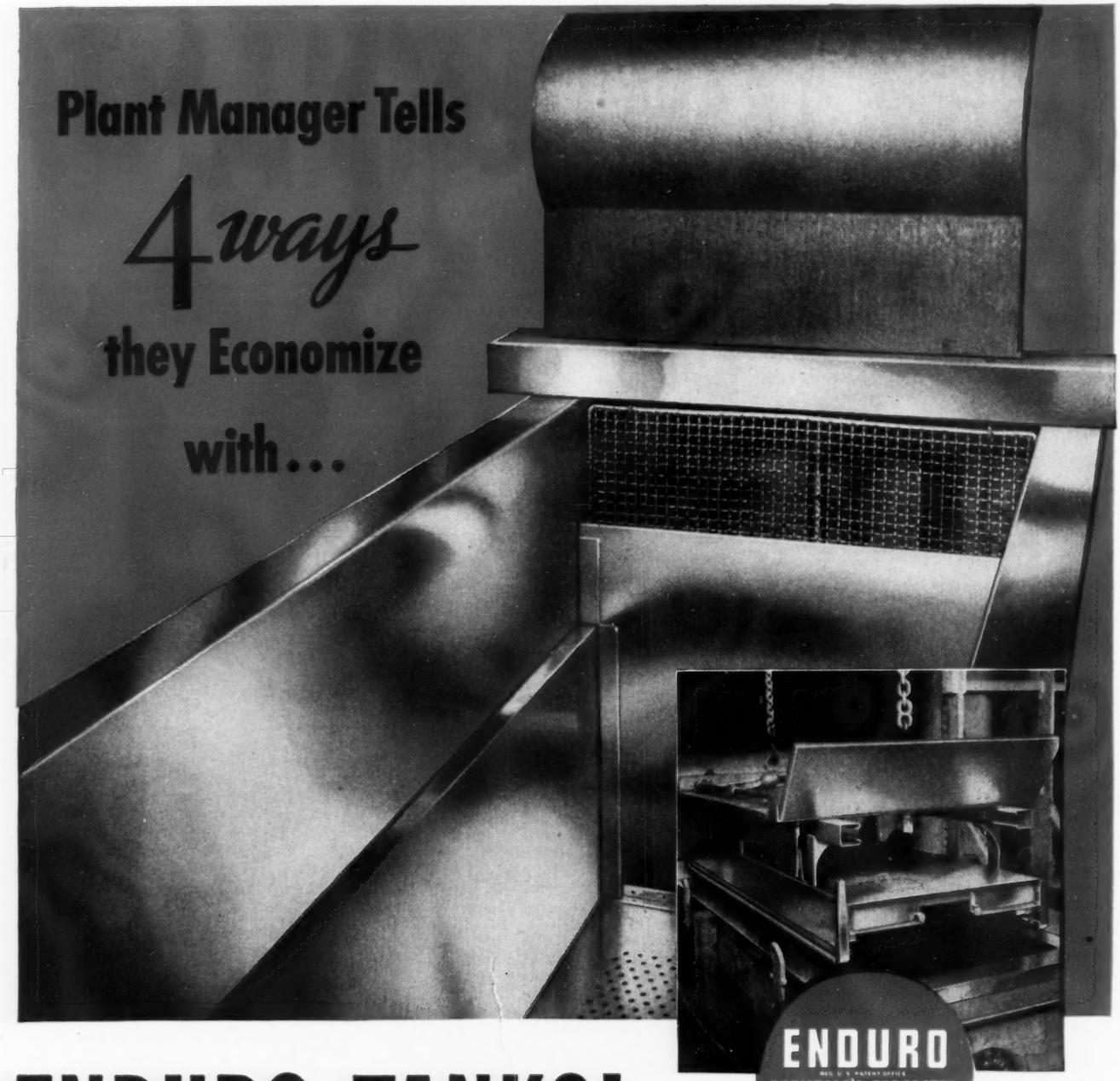
V. P. Robert and Company, Inc.
Atlanta, Georgia.

◆

Camera Fans—Please Note

Since including the Textile Pictorial Portfolio in the February number, we have received numerous favorable comments on this feature. We are glad you like the pictures and we promise more of them from time to time. What kind do you like?

The Editorial Department will welcome any photographs with a textile slant submitted by amateur photographers among our readers. If we receive a sufficient number of the right kind, we will run them as a special section.



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COTTON
SERVING THE
Textile Industries

March, 1938 Vol. 102 No. 3

SUPERFICIAL versus FUNDAMENTAL ECONOMICS

THERE ARE always in evidence two schools of economic thought; one of these dealing with fundamental and the other with superficial economics. Fundamental economics has to do with the application of deeply-rooted, basic principles, as affecting longtime results of a certain course of action. Superficial economics is concerned only with what a certain course of action can produce immediately. Thirty years ago, when Theodore Roosevelt was so forcibly preaching the doctrine of conservation of natural resources, he was merely recognizing that as a principle of fundamental economics we could not indefinitely continue to ravish our forest lands; exhaust the fertility of farm lands and invite their erosion; and wastefully expend many of our other natural resources without ultimately reaching a point of exhaustion where the country would suffer seriously from the depletion of these resources. At the same time that the President was preaching this doctrine of good sound common sense, the superficial economists were roundly denouncing his program and insisting that we should increase employment and speed up business by exploiting and destroying our natural resources as expeditiously as possible. The fundamental economists in that sort of argument recognized the necessity of perpetuating the supply of timber and arable land, while the superficial economists were only interested in a quick profit, and with their eyes primarily on election day were not much concerned with what happened after the election.

From the nature of things, practically every politician, if he understands anything about economics at all, has to be a superficial economist. His immediate problem is obtaining favors for his constituents; his chief concern is election day. For a politician to take a sound, longtime view of a national economic problem is to invite defeat at the hands of some opportunist who promises much in the present without thought to the future.

The affairs of the past few years have certainly been administered according to the theories of the most superficial of the superficial economists. Any needling or pump-priming scheme that seemed likely to stimulate a little temporary business excitement was resorted to, regardless of possible longtime consequences. We have been living more or less on an inflation for 20 years, and we hate to give it up, yet for the past eight or nine years fundamental economic laws, that Congress cannot repeal or an administration ignore indefinitely, have been trying to pull our inflated economic structure down to a sensible level.

THE TEXTILE INDUSTRY went through this period, beginning about 1922. It was a hard, bitter, distressing period, but there was no help for it, and the readjustment had to be made. While it may not be absolutely complete, even yet, it is substantially complete. Other industries entered upon their period of deflation in 1929 and 1930. By 1932 deflation had made considerable headway, but inflation had been such a beautiful toy to play with that nobody wanted to give it up, and we have been trying to hang on to it by every conceivable sort of subterfuge and illusory scheme imaginable. These schemes seem to have more or less crumbled up, and we are now back into another depression; call it by whatever fancy name you please.

Among other futilities that have been widely practiced has been that of lending money on easy terms through Government agencies to people who were not entitled to credit. A good deal of this indiscriminate lending has been prompted by sentimental, rather than logical, reasons. Hundreds of thousands of persons about to lose their homes through foreclosure presents a powerful appeal to the sympathies of the public. The Federal Government is now finding out, however, just what the bankers and insurance companies had found out before, and that was that a person who can't pay the interest or principal of a loan has sooner or later got to lose the property securing the loan, or else the person who makes the loan has to lose his interest, and possibly his principal. Recent

This begins an intermittent series of editorialized discussions on subjects of a general scope that have a specific relationship to the interests of textile manufacturers. The business, economic and political activities of this country are so complex and intertwined that the major problems of an individual or of an individual business man cannot be segregated or compartmentized. Thus, we feel that the textile reader, as an American business man, has so definite an interest in the broader subjects to be discussed here that they have a logical place in his industry-reading and industry-thinking. Your comments will be helpful.—THE EDITOR.

newspaper reports indicate that the Federal Government has been forced to foreclose on over 200,000 homes for non-payment of interest or principal.

THE SAME LINE of reasoning applies to Federal loans on moribund manufacturing enterprises. There are undoubtedly textile mills, as well as other manufacturing concerns, which have been benefited by Government loans on favorable terms, but at the same time there have undoubtedly been cases where loans were made largely through the influence of some local politician wishing to curry favor with his constituents and where the loan was unjustifiable on any economic ground. The stock argument advanced is that if the plant goes out of business its employees are automatically thrown out of work, but since the production of this plant is immediately taken up by other plants, the same number of unemployed people are put to work elsewhere, and as far as the body politic is concerned, the effect is the same. People who had work now have none, while others who had none are now employed. It all adds up to the same thing. By keeping some hopelessly defunct plant running and leaving it owing the Government a good deal of money, the taxpayers were left holding the bag, and it is hard to see how any real benefit accrued from stringing out the existence of something that finally had to go under.

THERE IS now under consideration a companion scheme to the idea of trying to stay the hand of Fate by bolstering up rickety credit with Federal loans. That is the wages-and-hours bill which has been so hotly debated within the past few months. Certain sections of the country, no longer able to compete with other sections on a natural basis, are appealing to the Government to establish an artificial basis to forcibly maintain their *status quo*. The textile industry is particularly illustrative of that point. Southern cotton mills enjoy certain natural advantages over New Englanders; these being chiefly climatic. Many New England mills suffer a terrific artificial disadvantage as compared with southern mills, in that militant labor organizations flatly refuse to permit the handling of as much machinery per worker as is generally handled in the South.

As a fundamental economic principle, is it sound to adopt artificial measures to force all textile costs up to the level of those mills which now cannot meet competition? Generally speaking, mills in Maine and New Hampshire enjoy distinct advantages over those in Massachusetts. Practically all of those mills have cheap water power and are not subject to labor union restrictions prevalent in Massachusetts. Textile mills in New Hampshire and Maine should be able to compete on fairly even terms with mills of equal character in the South. If about 75 per cent of the mills of the United States are able to compete with each other on a natural basis, is it fair to artificially raise prices to the consumers on the product of this 75 per cent of the industry to help the other 25 per cent.

Superficially, and as a practical political move, it might be desirable to do this, but over a long period of time, those who are best fitted to compete are going to survive, and those who cannot compete must give way to those who can.

Most of the economic ills from which we suffer today have been caused by inflation and unjustifiable optimism, together with a determined policy of trying to defeat the operation of perfectly natural economic laws. If we would turn our minds less to perpetuating inflation and stimulating it when it lags, and just let nature take its course to a greater extent, we would get back to a fundamentally sound economic structure a lot quicker than if we try to prolong the pipe dream a few more years.

Can You Answer These Questions for Us?

THE ANSWERS to all of the 20 questions appended below may be found in articles appearing in this issue of COTTON. If you have read this issue carefully, you should be able to answer a large percentage of them. They cover a wide range of subjects, and perhaps no individual reader's interest extends over the entire field. However, we feel it will be interesting and entertaining if, after you read this issue in your customary way, if you will turn back to these questions and see how many of them you can answer. There is no prize, other than the result of checking on yourself. Another result is that some question you cannot answer may lead you to read an article you otherwise would have overlooked. The page number after each question indicates the source of the answer.

Drop us a line and tell us how you came out.

1. What is the fundamental cause of most of our economic ills? (Page 51.)
2. What are the major forms of textile printing? Who invented stencil printing of textiles? (Page 53.)
3. What is the best way to check quickly on seconds produced in weaving? (Page 56.)
4. How does one prominent mill in Mexico handle its waste problem? (Page 58.)
5. What percentage of rayon consumption went into hosiery in 1916? In 1937? (Page 62.)
6. In what year or years did the consumption of cotton by U. S. mills break all records? (Page 62.)
7. What point of textile interest did Paul Seydel discover on his recent trip to Australia? (Page 63.)
8. On what grounds is the patentability of an idea or a device judged? (Page 68.)
9. How do English textile mills apply individual drive motors on their cards? (Page 69.)
10. What are the dates and places of the more important coming textile conventions? (Page 72.)
11. Who handles, in the South, a recently developed hydraulic truck for handling large loom beams? (Page 78.)
12. Who now represents Kaumagraph Company in the Carolinas territory? (Page 84.)
13. To what mill presidency was D. W. Anderson, who has been president of Pacolet, recently elected? (Page 88.)
14. What was the Dollar Savings Club founded by Old-Timer, and what were the results? (Page 92.)
15. Does a weaver have to see all of his cloth as it is woven to make perfect cloth? (Page 97.)
16. What is the best way to make a loop selvage? (Page 101.)
17. Why are uniform lengths and perfect foot-and-leg matching such a problem on full-fashioned hosiery? (Page 109.)
18. What well-known hosiery concern is erecting an addition at Siler City, N. C.? (Page 111.)
19. What is the difference between the 13-step and 25-step Scott & Williams spiral attachments? (Page 113.)
20. What are the nine requirements of an ideal hosiery dyehouse? (Page 116.)

A Description and Study of (Article 1) TEXTILE PRINTING

By C. Norris Rabold

Chief Chemist, Union Bleachery, Greenville, S. C.

THIS article begins a serial treatment of textile printing. This installment, describing the earlier forms of printing and those utilized in specialty work, is a logical introduction to the discussion. The next article will cover the subject of machine printing, which is in greatest use today.

Piece-goods printing is the latest phase of finishing to receive development in the South in a substantial way. An increasing amount of the yardage woven in southern mills for printing is being processed in that section. This serial discussion will be of interest and value to those engaged in this work, as well as to readers in other phases of textiles . . . . . .

TEXTILE PRINTING is an art which has come down to us through many centuries, and in that time has evolved itself into the forms which we know today. By "textile printing" we mean the impression of one or more colors onto a woven fabric so as to produce a pattern. The woven fabric may be silk, wool, cotton, linen, rayon, or mixtures of these materials, and in this article we shall endeavor to explain the various processes used to produce such designs.

As before stated, the background of modern printing covers many centuries and its origin can be traced definitely to the Far East. Both the Chinese and the Hindoos may well claim themselves as being the first to produce patterns on cloth, but neither claim is so well authenticated as to say definitely which nation can take precedence over the other.

It is probable that one of the first forms of printing was really a transitional phase from the art of dyeing, which is the impregnation of a woven fabric with a solid color. This form of printing is done by taking cloth and tying it into a series of knots, some of which are hard and some of which are soft; some double knots and some single, scattered at irregular intervals along the length of cloth. The goods are then dipped into a vat of color which is absorbed more by the cloth which has not been tied tightly, and less by the cloth which forms the knots. This piece of cloth can then be dried, the knots untied and retied in new places, the cloth again dipped into another vat containing a different color, dried again and this process repeated until the cloth has been immersed into as many colors as desired. This process, known today as "tie-dyeing", is still practiced on a very small scale, especially in the production of scarf and tie materials. The pattern formed is extremely haphazard, and the process is usually carried on with very bright colors. Due to the different tensions in the fabric, the colors from one vat to another overlap and shade into each other, thus producing a variegated effect on the fabric.

A somewhat similar process is used where a length of cloth is tied with string so as to constrict it at irregular intervals, and then dipped into various vats of color. While the dyer might say this is more nearly dyeing than it is printing, this method was probably one of the first used to produce more than one color upon the same piece of cloth. At the same time, in the development of textile printing, there probably occurred the transference of designs or colors on a woven fabric by the method of "hand printing"; here, the artist, with a brush and palette, produced designs upon a piece of cloth, which design could be repeated or a continuation of it made, depending upon the artisan's intention.

Batik Printing in Java

The types of printing which are the direct forerunners of textile printing and are still practiced today, are "batik (battik)" printing and "block," and "stencil" printing, all of which were practiced many centuries ago. Batik is still carried on in the East, especially in Java, while block and stencil printing is practiced in this and European countries, though not on an extensive scale. Batiks are made by tracing the outline of the pattern on the cloth with a mixture of melted wax and resin, and subsequently filling in the portion between the outline with the same material. The cloth is then immersed in a bath of dye stuff and is colored where it is not "reserved" by the wax. After the unwaxed portions have been dyed, the cloth is then immersed in a bath of boiling water, usually containing some alkaline material, which emulsifies off the wax, leaving part of the cloth dyed and the part which has been reserved, white. The cloth may then be dried and another pattern traced with the wax on top of what already has been printed. The cloth is again immersed in another color bath, and depending upon the nature of the second pattern, this different color may overlap the first and also color part of the white reserve, thus producing several different shades. This is not common as most of the Javanese goods are single color patterns, although more than one is known. Due to the cracking of the wax and resin in the handling of the cloth in a one-color pattern only, delicate veins of color would trace themselves irregularly across the reserve, thus producing a very rich effect.

When modern machine

printing was first developed, considerable effort was expended, particularly in England, to imitate the hand-printed batik patterns. At first, these efforts were very crude and did not match the hand work, but later, due to improvements in engraving, and the general technique of machine printing, the imported fabric from the East was almost entirely supplanted.

While batik printing has become nothing more to the modern age of printing than a curiosity, block printing, which is its contemporary, persists today—both in Europe and in this country, though in neither on a very large scale. Much attention and thought on the part of those interested in the development of block printing has resulted in many refinements, though today its technique is much the same as it was long ago.

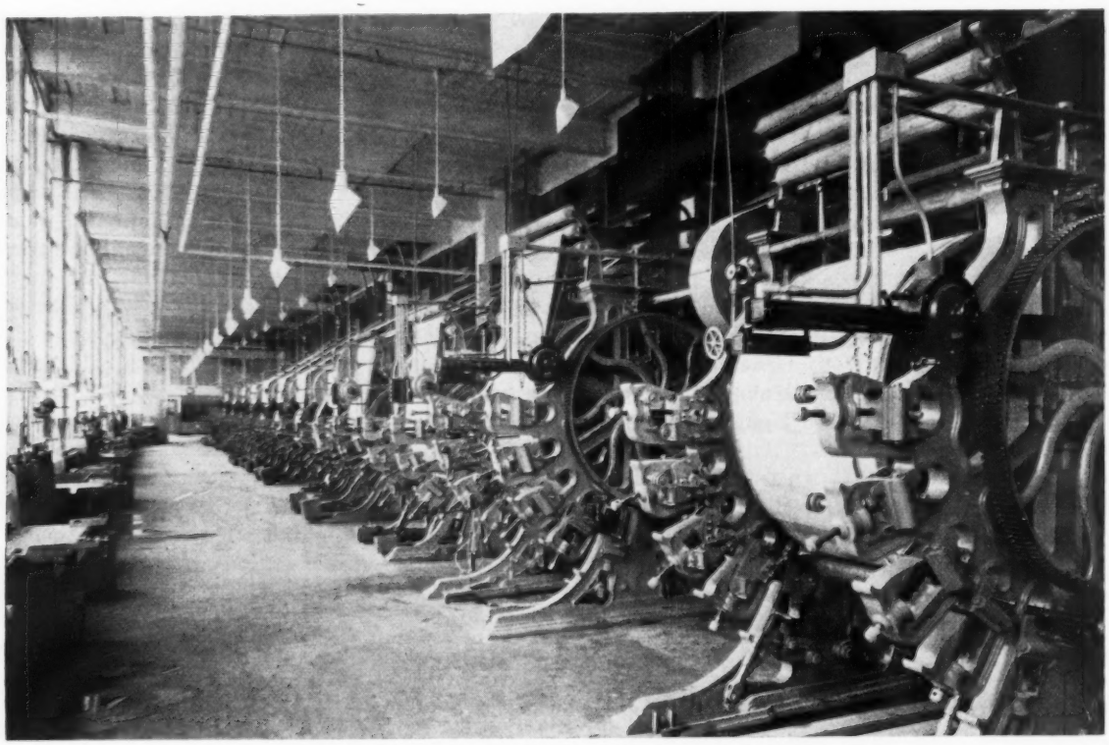
Block Printing

Block printing consists essentially of stamping the design on the fabric by means of a wooden or metal block, upon which has been cut out the portion of the design, in relief. These portions are then coated with color and are applied to the cloth by pressing the block against it. The cloth to be printed is laid upon a smooth, flat table and has underneath it another cloth made of thick absorbent material, which acts as a cushion, and the entire length on the table is printed by means of successive impressions made with the block or blocks forming the design. When this length has been printed, the cloth is pulled over the table until it is again covered with unprinted cloth, and the process repeated.

The success of block printing depends largely on the blocks themselves, as the face of each block must be perfectly level and smooth and of a wood which does not tend to warp out of shape, due to continued contact with wet color. The skill of the artisan who carves out the design on these blocks is also important to the success of the pattern, for the outlines must be sharp and the edges of the design smooth, so that when the impression is made on the goods, no irregularities will appear, due to engraving. Cast metal forms are sometimes used in place of the carved wooden blocks, and these require touching up by hand only, to keep the edges smooth.

In printing with blocks, a separate one must be carved for each portion of the design, thus if a flower is to be printed with the stem one color, the leaves another, and the petals still another, a separate block would have to be engraved for each of these portions of the design. These blocks may be of any size and shape, though they are usually square or rectangular and seldom run over 15 to 20 inches on a side, as over this size they become too cumbersome for the printer to handle satisfactorily. On each corner of the blocks are small wooden pegs, known as "register pins", which are placed there so that the printer can match up accurately, one impression of the block with another. This he does by means of super-imposing the pin marks left by the first impression he makes on the cloth with the wooden pegs on the block when he makes a second impression, matching the right hand pin marks on the cloth with the left hand register pins on the block. Where possible, and it usually is, the blocks are so carved that these register pins form a part of the design, and the layman can seldom distinguish these pitch marks in a well executed pattern.

In applying the color to the block, the printer does it by pressing the block against an absorbent pad, which has been impregnated with the properly thickened dyestuff. This pad consists of a wooden frame



A line of printing machines in a prominent southern plant . . .

The next installment in this series will be of especial interest and definite value. It will describe machine printing, covering in detail the color shop, print room, agers and soapers, etc., as operated in present-day, progressive printworks in the South . . . . . .

Other subjects of definitely practical interest to be covered in subsequent installments include: Printing thickeners from the standpoint of viscosities, color value, washability, etc.; engraving of copper rollers, functions of ager and soaper, dyestuff development, etc. . . .

with sides several inches deep and the bottom covered with thick felt. The color is poured over this felt as evenly as possible, and is absorbed by it so that when the block is pressed against it, a thin film is retained by the raised surfaces. The printer then presses the block coated with color on the cloth, fixing its position by means of the aforesaid register pins and forces the color into the cloth by tapping the top of the block with a mallet, a manual process.

Several machines, fathered by the Perrotine machine, have been designed to do block printing mechanically, but they have not come into extensive use, due to reasons too lengthy to mention here, although some printing by these machines is still done in France, where the Perrotine originated.

Block printing today is used primarily on designs or patterns where the "repeat" is too far apart to be done by machine printing, or where the number of different colors entering into the pattern are too many to be done by machine printing. Block printing is most suitable on very expensive fabrics, where the entire yardage to be printed is quite small, and the fabric after printing is intended primarily for ornamental purposes.

Screen and Spray Printing

Several modifications of the art of "stenciling" are in use today in this country, these modifications being "screen printing" and "spray printing". Stenciling of textiles was originated by the Japanese and carried to a high plane of development by them. The stencil was made by cutting perforations on a piece of parchment, or similar material, which was then laid over the cloth to be printed, and a brush, dipped in suitably thickened color, was then passed over the stencil. As in block printing, where a separate block must be engraved for each color of the design, so must a stencil be cut for each separate color. These stencils may be cut in such a way that when one is placed on the cloth where a previous color has been printed, a portion of the second stencil may cover the already printed color so that the second color overlaps the first, forming a third shade. As the perforations in the stencils permitted a free passage of color into the cloth, and as the nature of the stencil itself also permitted these perforations to be in the form of fine lines and dots, the printer could produce many variegated effects, depending upon the number of times he passes his brush over the openings in the stencil, and also the pressure he applied at any particular time.

Screen printing is done by means of frames over which are stretched finely woven silk, similar to bolting silk. For each color of the design, a screen is made and the detail to be printed with each color is traced upon the silk, the silk then covered with a quick-hardening varnish, where the color is not to permeate through on the cloth to be printed. The actual printing operation is then performed by placing the screen upon the cloth, adjusting its position by means of the register pins on each corner, the color applied to its inner surface as evenly as possible with a brush. The printer then takes a wooden wedge, slightly rounded at the point, and passes it back and forth over the surface of the screen, forcing the color through the unvarnished portion of the silk onto the cloth to be printed, which is stretched smoothly on a flat table over an absorbent back cloth.

With the same screen and the same strength of color, the printer can vary the depth of shade and the shading towards the edges of the pattern on the screen, depending upon the pressure he exerts and the number of times he passes the wooden wedge back and forth across the screen. As soon as one color is printed, a second screen, through which another color is to be printed, may be placed on top of the first, and the operation repeated, and so on until the design has been formed. Thus, as different colors, one after another, are printed in succession, beautiful shading effects are produced, due to the super-imposing of one color on another, or to the bleeding where adjacent colors come in contact with each other. This bleeding effect, at the juncture of two different colors, which causes shading from one into the other is also true of block printing and is characteristic of both methods.

By means of either screens or stencils, colors are also applied with an air spray gun. Here again, varying effects can be produced with the same stencil or screen, depending upon the pressure of the gun and the time the spray of color is allowed to pass through the openings of the screen.

One adaptation of the spray method of printing is by means of a revolving metal cylinder on which the design is perforated in a number of fine holes, behind which, fixed in position, are a number of air spray guns. These are so constructed that their sprays only operate intermittently. The cloth is passed in close contact to the cylinder which revolves continuously and the color sprays inside are actuated by electro-magnets which cause the color to spurt out of the jets through the perforations on the cylinder, and scatter over a definite area of cloth. Depending upon the pressure, size of these perforations, fluidity of the color, etc., the coverage on the cloth can be more or less controlled. Due to the fact that a great number of these spray jets may be placed inside of the cylinder, each one fed with a different color, a great variety of shades may be produced in one printing, and as the colors blend into each other, due to overlapping of the sprays, color gradations in shading from one color to another enhance the beauty of the print. Also since the cylinder with the perforations in it may be quite large, a design can be continued over a length of cloth much larger than is possible in machine printing.

(Continued on page 70)

Loom No. 345 Inspt: 2

WEAVE ROOM

Bad Reed
Bad Temple
Bad Selvage
Black Oil
Cut Filling
Dirty Cloth
Dirty Hands
Dirty Water
Double Ends
Dirty Filling
Flats
Floor Dirt
Hard Size
Hole
Jerked In
Kinky Filling
Knock Outs
Long Runs
Lumps
Oily Filling
Oil on Selvage
Pick Outs
Skipped Filling
Skipped Thread
Skipped on Selvage
Slasher Dirt
Slack Warp
Shafting Oil—Yellow
Smash
Stringy Selvage
Strings
Thick Stripes
Thin Stripes
Wrong Draw
Rough
Narrow
Wide

Form 1. Goes to loom fixer . . .

SECONDS REDUCED BY SYSTEM

Co-operation Between Cloth Room and Weave Room Aids in Reducing Bad Cloth

THIS short article, with the aid of the accompanying forms, will attempt to describe briefly the system used at our plant for reducing seconds in the weave room. To a great many readers, this system may at first appear to be somewhat complicated and not worth the effort involved; however, it has been found very beneficial in the mill where it is being employed. It has reduced seconds to, and holds them around, 1¾ per cent in the weave room, and *under* 3 per cent for the finished cloth, which of course includes shorts, remnants, etc., This is in a mill on narrow sheetings and print cloths.

The cloth is inspected on the loom three times a day; once each by the loom fixer, pick-out hand and smash hand. However, the weaver is held responsible for the quality of the cloth and is paid on a quality basis. Each of the three inspectors named has a number, and as he makes his rounds, he puts a small, 1, 2, or 3, with a blue pencil on the cloth. When this gets to the cloth room and an imperfection is found near one of these numbers, the man responsible is reprimanded by the overseer.

DAILY REPORT OF IMPERFECTIONS IN CLOTH

DATE 8/4/34 193

BAD FILLING CHANGES	700	725	890												
BAD REED	301	520													
BUNCHES	400	402													
BAD TEMPLE	200	360	750	930	245	276	295								
BAD SELVAGE	375														
BAD CUT MARKS															
BLACK OIL															
COCKLED FILLING	900														
CUT FILLING															
DIRTY CLOTH															
DIRTY HANDS	680														
DIRTY FILLING															
DIRTY WATER															
DOUBLE ENDS	270														
BLINGS															

Form 2. Gives daily report of looms making faulty cloth due to any of the listed imperfections . .

On the imperfect cloth that reaches the cloth room, there are several forms used for notifying the weave room of the trouble. Form No. 1, similar to such a report as found in the majority of mills today, is most useful for getting word promptly to the weave room overseer indicating a loom that is making bad cloth. As the cloth comes to the grader, he checks the report at the proper place, puts the loom number on and sends it immediately to the overseer of weaving.

Also at the grader's table is placed Form No. 2. On this form the grader places daily the loom number of each loom that has made cloth with any of the listed imperfections.

Each day the report is sent to the overseer of weaving, and he has a complete summary of the conditions of his room relative to the making of imperfect cloth.

As the "back grader" works up the bad cloth, he makes a list each day of the loom numbers, the number of yards of imperfect cloth each loom makes and the cause or defect. From this list is taken the information for filling out Form No. 3. This form is made up according to the different sections in the weave room. The illustration shows only one section, but the entire report sheet is printed with a space for each of the sections in the weave room, and these sections are perforated. In only a few minutes time, a report is ready for each loom fixer, showing the loom number, number of yards, and defects for any of his looms.

SECTION Nº 1			SECTION Nº 2		
LOOM Nº		TO	LOOM Nº		TO
Nº	YDS.	DEFECTS	Nº	YDS.	DEFEC
SECTION Nº 7			SECTION Nº 8		
LOOM Nº		TO	LOOM Nº		
Nº	YDS.	DEFECTS	Nº		

Form 3. Made out by the back-grader.

At the end of the week, the weave room is given Form No. 4, which shows not only the number of yards of seconds and the percentage of seconds of each section, but the percentage of production as well. This Weekly Weave Room Production Report is made up with a section for each section of the weave room, though to conserve space only one portion of this report is shown herewith.

This report goes first to the superintendent, who comments with a red pencil "good" or "bad" and initials his comments. This report throws an element of rivalry into the weave room, as each man sees a comparison of his results with the results of others.

As mentioned in the beginning, this system may appear to be a little elaborate, but once it is put into operation, it takes very little of any one person's time in the organization and with us has proven to be a very satisfactory method of holding our seconds in the weave room to a minimum.

WEEKLY WEAVE ROOM PRODUCTION REPORT

ROOM Nº 1 SECOND HAND John Doe

TOTAL PRODUCTION 97% SECONDS 1.90% WEEK END 8/6/34

	Nº LOOMS	STYLE	CUTS PRODUCED	PER CENT PRODUCTION	YARDS SECONDS	PER CENT SECONDS
SECTION Nº 1						
LOOM FIXER Jim Brown	84	#3	240	95	144	1.00
WEAVERS Neel Moore	84	#3	240	95	144	1.00
TOTAL						

Form 4. This report shows the number of yards of seconds and the percentage of seconds as well. Reports such as these inject a spirit of friendly rivalry within the weave room . . . . . .

Procedure on MILL WASTE as Practiced in a Mexican Textile Plant

By James Dugelby

Director de Hilatura

Compania Industrial Veracruzana, S.A. Fabrica de Santa Rosa, Ciudad Mendoza, Mexico

NO MANUFACTURER has yet been satisfied with his percentage of waste in the mill. As with taxes, we shall always have waste with us, but we continually strive to decrease it. A systematic method of checking the waste, and other losses, as employed in an outstanding mill in Mexico, is described here by the inside manager (superintendent). We present it for its interest as to the problem discussed, and as showing practice in the industry in that country . .

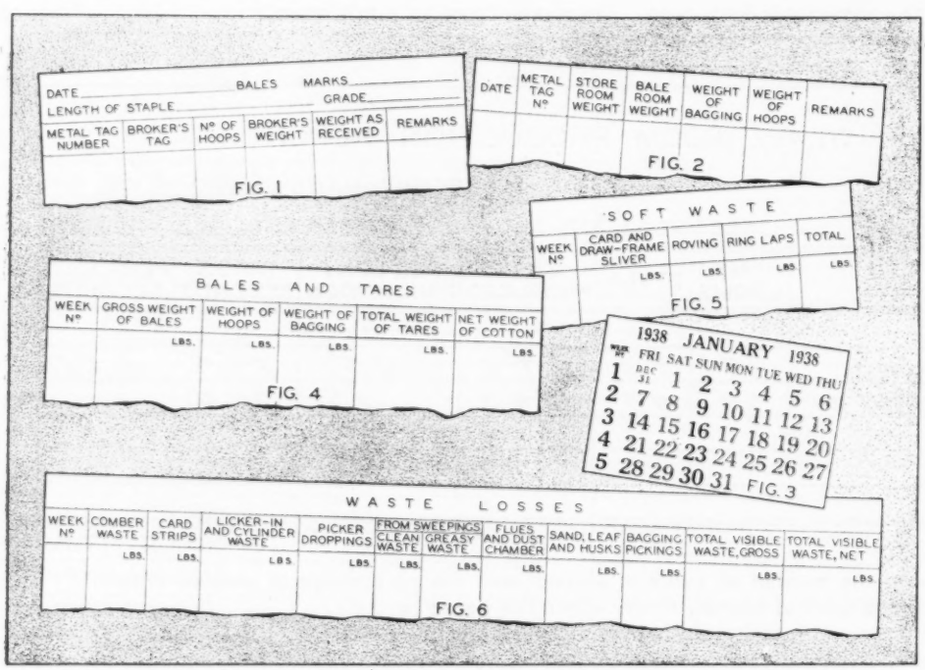
IN THE CARDING AND SPINNING of cotton, costs may often be substantially reduced by applying a method of efficient control of waste and other losses. These losses cannot be eliminated entirely because some of them are just as important as the finished goods themselves. Satisfactory control of the losses can be accomplished only by keeping in touch with each and all of the individual processes, and by keeping classified records for each of the different sections (departments). From these records, percentages and graphs may be prepared. As a general indication it must be mentioned that the inside manager (superintendent) will require the cooperation of his overseers, as a weekly report will have to be received by him from the person in charge of each section (department). The following paragraphs indicate how the efficient and economical working of each department is controlled as far as the losses are concerned.

Bales Entering the Mill

When bales are first received in the mill, a preliminary examination is made by the storekeeper in order to ascertain and to record their condition. If excessive humidity is suspected, a test is made in the conditioning oven whenever possible. A bale book is kept and in it is recorded the weight of each bale as received, the broker's weight, marks on the bale, number of the tag, quantity of bale hoops, condition of bagging, whether there is any country damage, and any other useful particulars. Irregularities only are pointed out to the manager and a claim is lodged on all justifiable discrepancies.

Bales Entering the Opener Room

After weighing, a metal tag bearing a number is attached to the bale, and the weight of the bale as received must be opposite the same number in the bale book; for this purpose it is preferable to use a system of progressive numbering.



The storekeeper's bale book is made up as shown in Fig. 1.

As the bales enter the bale opening room they are weighed again and their weights recorded in a cotton book opposite the number found on the metal tag. This weight is the actual weight of the cotton entering manufacture and may differ from previous weighings as local atmospheric conditions may have altered the humidity content.

The blowing-room major's (overseer of carding) cotton book is made up as shown in Fig. 2.

It is the duty of the person in charge of classifying the bales to have re-

corded any faults he may find, such as false packs, inferior grades, etc. When it is possible, the faulty bales are left for the broker to see and the bagging and tags are kept for reference. Quite a lot of money is lost by not attending to these details. A few bales of inferior cotton are easily slipped, quite accidentally, into a better lot. It is unfair that a manufacturer should pay a pre-determined price for a stipulated type of cotton, and that he should receive an inferior grade or staple. The manufacturer depends on his employees to see that such does not happen. It is up to the employees, whether manager or subordinate, to understand and to recognize this responsibility.

Waste Losses

The cotton, having once been given the official classification and acceptance, now follows the normal procedure of manufacture. As each kind of waste is collected it is put into bags, or sometimes baled in a small electrical baling press. The bags or bales are then weighed and ticketed and their weights recorded in a notebook under suitable headings. Each week a list of the weights of the different kinds of waste are given to the inside manager (superintendent) or to his assistant, who records the weights under their appropriate headings.

It is a good plan to have the dust flues and cellar cleaned out once a week in order to collect as nearly as possible all "visible" waste.

The Industrial Calendar

With respect to these records, and in order to be able to calculate accurately the waste percentages for each week or month, a form of calendar is used that divides the months into weeks, each of which is numbered. (See Fig. 3). The point of departure for this type of calendar is determined by the day from which wages are reckoned, i.e., making up day. For the purpose of illustration, suppose that wages are reckoned up to Thursday of each week, then the calendar should properly start on Friday of course.

Thus February 1938 will start on February 4, because week 5 has 4 days in January and only 3 in February. Therefore all records for January will close on the last day of week 5, i.e., February 3. Throughout the book of records a line is drawn beneath the figures corresponding to the week ending the industrial month and a space is left for adding up the amounts for the month.

A departure may be made from any day in the week, that day being the day after making up day. The months always close as explained in the foregoing paragraph. Each week is referred to according to its number.

The inside manager's (superintendent) book of records is about 14 x 9 inches and has 36 horizontal lines. The vertical lines are drawn by hand to separate the different columns. For the sake of simplicity in subsequently reckoning percentages, it is preferable to record the weight of each item in pounds. It must be understood that if any of the soft waste is not re-used in the mill, it must be added to waste losses.

The Book of Records

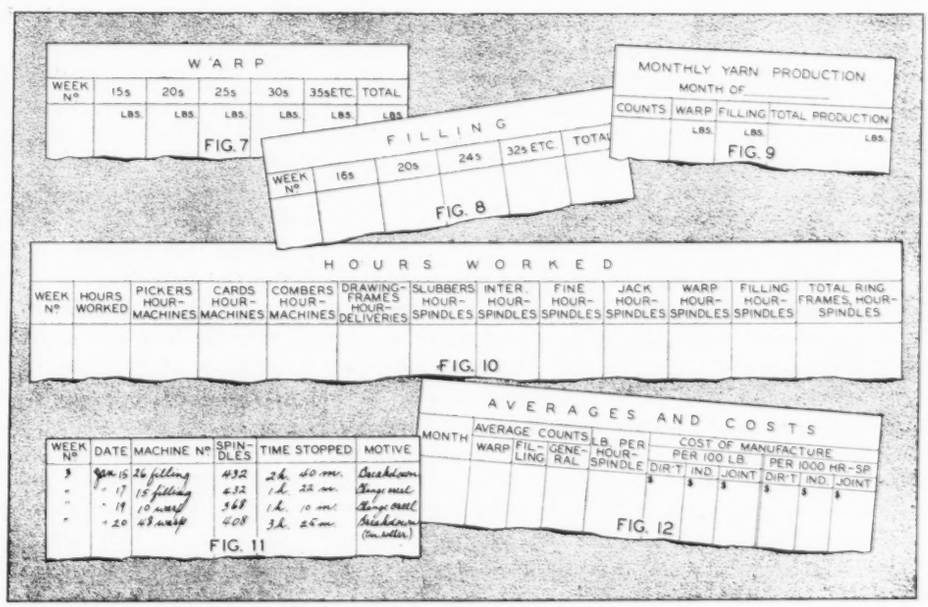
The pages allocated to bales and tares, soft waste, and waste losses, are shown in Figs. 4, 5, and 6, respectively.

Where different kinds of cotton are manufactured, such as American and Egyptian, the waste is, as far as possible, recorded separately. When the soft waste is re-used in the mixing, this is not a true loss, but it is useful information to keep a record of the different classes of waste in order to compare percentages. To run this waste over means that the company is paying for processing the same cotton twice, so this waste should be kept to a minimum.

Waste percentages may be calculated each week but a better average is secured by using each industrial month. Percentages are then calculated for each kind of waste or loss and are graphed so that the fluctuations may be appreciated at a glance. If there develops any abnormal increase in any one class of waste, an investigation follows at the earliest opportunity. The standard percentages for each kind of loss may differ in one mill from another so the routine standards for local application can only be established after several months of observation.

Production of Yarn

Every week the number of pounds of each of the different counts of yarn produced are booked, each column being headed by the counts of yarn; warp and filling are booked on separate pages. There is also a column for the total production in pounds.



(See Figs. 7, 8 and 9.) The average counts are calculated each month for the warp, the filling, and for the general average.

Under the heading "Hours Worked" (See Fig. 10.) the different departments of the mill are classified; in each column either the number of hours, or the number of hour-machines, or the number of hour-spindles (spindle hours) are recorded. Accurate records are constantly kept of the number of machines actually at work; thus if a machine stops because of a breakage or to change counts, or for any other cause, the length of time lost is entered in a book by the overseer. At the end of the week the overseer delivers a list of stoppages to the inside manager (superintendent). The overseer also keeps a record of stoppages for his own use, such as the one shown in Fig. 11.

At the close of the week the overseer figures the time lost as follows:

Losses through breakdowns:

$$432 \times 2 \text{ hr. } 40 \text{ min.} = \frac{432 \times 160}{60} = 1152 \text{ hour-spindles.}$$

$$408 \times 3 \text{ hr. } 25 \text{ min.} = \frac{408 \times 205}{60} = 1394 \text{ hour-spindles}$$

Total causes through breakdowns 2546 hour-spindles.

Losses through other causes:

$$432 \times 1 \text{ hr. } 22 \text{ min.} = \frac{432 \times 82}{60} = 590 \text{ hour-spindles.}$$

$$368 \times 1 \text{ hr. } 10 \text{ min.} = \frac{368 \times 70}{60} = 429 \text{ hour-spindles.}$$

Total losses through other causes 1019 hour-spindles.

In his report to the manager he gives only the total hour-spindles due to breakdowns, and to other causes. The manager or his assistant deducts these quantities from the full complement of hour-spindles for the week. The hour-spindles corresponding to the time lost are booked in a separate column in the book of records. The time lost because of breakdowns may even be booked in a special column. This same system may be applied to other departments.

If the loss of time because of breakages shows an increase, the reason is ascertained. It may be possible that the overseer or his assistant or a fixer makes some adjustment improperly, or that the fixer does not sufficiently tighten nuts and screws, which work loose.

The Departmental Balance Sheet

The inside manager (superintendent) works out his own balance sheet and by so doing he nips many irregularities in the bud. The total weight of yarn produced added to the net weight of all visible waste gives a total that should be less than the net weight of cotton entered. There is always a certain amount of loss in the atmosphere in the form of dust, fly, etc., technically called "invisible loss". A real indication in the departmental balance sheet can only be obtained after stock-taking. A sample half-year balance sheet for a 46,000 spindle mill is given herewith:

FEED		PRODUCTION	
Net weight of cotton entered	1,778,866 lbs.	Yarn produced	1,554,089 lbs.
Previous inventory	106,759 lbs.	Net visible waste	204,700 lbs.
		Present inventory	109,214 lbs.
		Invisible loss	17,622 lbs.
Total	1,885,625 lbs.	Total	1,885,625 lbs.

To find the invisible loss, add the yarn produced, the net visible waste, and the present inventory; subtract this total from the total of the feed side. Should it be found that the production (without invisible loss) exceeds or almost equals the feed side of the balance sheet, there must be something wrong somewhere. After making sure that there is no mistake in the figures, investigation follows at once.

The first point verified is the tare allowed to the spinners on their production. First of all the weight of the container at the weighing machine; it being understood that the weighing machine itself must be in good order, then a revision of the weight of tubes. Half an ounce overweight for every skip or box weighed in, taking an average of 30 pounds per weighing, and an annual output of 3,000,000 pounds approximately would result in an overweight of 3,125 pounds of yarn which the spinners would have been paid for but which they had not produced. This amount would of course be at the expense of invisible loss.

Invisible loss itself will vary in different mills. For instance, in a mill where the dust chimney is of smaller area than that generally used, the up-draft has more velocity and carries more dust into the atmosphere. It must not be lost sight of, however, that where invisible loss is high, there is a possibility of yarn being stolen. Cases of theft are, happily, not frequent, but every angle is considered when invisible loss is high.

When invisible loss is low and the tares have been found to be correct, then the likelihood of spinners having access to the yarn store-room is investigated; where there is such a likelihood, suitable methods are adopted to prevent it. In point of fact, the manager takes steps to prevent this possibility even if his invisible loss is on the right side, because just as "Necessity is the mother of invention" so is "Opportunity the mother of theft". This does not by any means suggest that the average worker is dishonest, but there are exceptions who may do quite a lot of damage—always providing the opportunity exists.

Another source of overweight is the inclusion of one or more empty bobbins or pirns in the doffing. Where this practice is suspected, a look-out is kept for the culprits.

As the percentage of humidity content is variable, invisible loss will also be affected by an increase or decrease in this respect. This is indeed where the importance of a conditioning oven is made manifest, for if the percentage of humidity in the raw cotton is known at the time it enters the processing, and if the percentage of humidity in the spun yarn is known, it is easy to determine whether fluctuations in invisible loss are due to a variation in the humidity contents. As a guide, invisible loss may vary between 0.5 and 1.5 per cent.

Wages

It is the duty of the inside manager (superintendent) to control the cost of production and to keep it as low as possible. With this end in view, manufacturing wages should be classified in two categories: (1) direct wages, (2) indirect wages.

Direct wages are those paid to workers actually producing, such as picker operatives, card tenders, spinners, etc. Indirect wages are those paid to all other interior workers, such as overseers, doffers, sweepers, and all those not in charge of productive machines.

It will be noticed that wages outside of the actual manufacturing are not taken into account. The reason for this is that the cost of manufacturing as described has nothing in common with costing proper. The main motive here is to control the cost and to keep it as low as possible, also to prevent unnecessary waste, and as only those occupied inside the mill have any direct connection with actual output, only those need be taken into consideration. The rest of the employees, not directly connected with manufacturing, have definite duties and their wages are fairly constant. It would be superfluous and irrelevant to take them into account here.

Averages and Cost

The cost of manufacture per 100 pounds of yarn may be easily calculated in direct wages, indirect wages, or jointly. The following formula is used:

$$\frac{\text{Cost} \times 100}{\text{Production in pounds}} = \text{cost per 100 pounds}$$

It has been found that, normally, the cost fluctuates inversely with the production per hour-spindle, and in order to have a better indication of the stability of the cost of manufacture, the cost per 1000 hour-spindles is figured, using the formula:

$$\frac{\text{Total cost} \times 1000}{\text{Total number of hour spindles}} = \text{Cost per 1000 hour-spindles}$$

This does not, and should not, fluctuate to any great extent, providing the processes are the same. Naturally, if combing is introduced where previously only carding was the rule, the cost will increase; this will also be the case if more cotton passes through the jack frame for spinning a greater quantity of fine counts.

The formula for finding the production per hour-spindle is as follows:

$$\frac{\text{Total production in pounds}}{\text{Total number of hour spindles}} = \text{Pounds per hour-spindle}$$

All of the results should be recorded on the averages and costs page. (See Fig. 12.)

Charts and Graphs

From the worked-out averages and costs, it is convenient to keep charts on which the fluctuations are graphed. These will enable sudden rises or drops to be appreciated at a glance; it also shows whether there exists any relation between one and another of the items, as should be the case between average counts, cost per 100 pounds, and production per hour-spindle.

Percentages for each kind of waste and for total visible loss are worked out every month and the results graphed. Any sudden jumps on the charts are points to be looked into.

The production in hanks on the fly frames are totaled and recorded every week. Every month these productions are worked out in pounds according to hank roving being made in order to discover any discrepancies in this direction. It is remembered, however, that differences are likely to occur between the production on the ring frames and the calculated production of the fly frames because the stock of bobbins itself is constantly fluctuating, but over a fairly lengthy period, say 6 months, the productions should show some concordance. Here, too, any substantial differences in production of ring frames and fly frames are investigated.

Testing

Every picker lap is weighed and only a limited difference in weight is permitted. Drawing frame sliver is tested 3 or 4 times a day for weight. Where drawing frame sliver shows a series of wide and erratic variations the cause is ascertained. At one particular mill the investigation disclosed that out of 3 finisher pickers, two were working with a 20 wheel on the drop shaft and one with a 22 wheel. This had the effect of increasing the draft between the measuring calender roll and the fluted lap rolls, and though the laps themselves were of the same weight on all 3 machines, a lap was being made 10 per cent lighter yard for yard on one machine than on the other two. What had happened was that the blowing room major (overseer of carding), not well up in calculations, had run short of 20 wheels and had found that, as far as he was concerned, a 22 wheel worked just as well. Wide variations could even be noted in the yarn when testing.

It is a good plan, in order to keep the drawing frame sliver as nearly constant as possible, to strip every odd card cylinder and doffer at one stripping, and every even card at the next stripping. This tends to counteract the thinning effect of stripping all the cards at one time.

Where irregularities are suspected of originating in the blowing room (picker room), a series of tests are carried out by unrolling laps on the floor and by weighing lengths of one yard each. Any fault found here is attended to. The regulator pedals may be the cause, or the cone belt may be defective, a back draft may exist, or a door in the side of the machine may have been left out. Any of these defects may cause uneven laps and consequently uneven sliver.

In the combing department, tests are carried out at least once a week in order to verify the percentage of waste being extracted.

Roving from the fly frames is tested regularly, especially the fine frames and the jack frames—

(Continued on page 70.)

Figures on Consumption of Rayon and Other Fibers

THE AMAZING STRIDES made by rayon consumption in this country are forcefully brought to light in figures given by the *Rayon Organon*, published by the Textile Economics Bureau, Inc., in its special supplement to the annual rayon and textile statistics number, in which is given the distribution of rayon by trades. In 1916, shipments of viscose, cupra, and nitro yarns (acetate was not manufactured at that time) totaled 5,700,000 pounds, in 1927 it totaled 79,500,000 pounds, and in 1937 it totaled 260,300,000 pounds, being supplemented about 1931 by acetate rayon which began to find its place with viscose, cupra, and nitro.

In 1916 the manufacture of hosiery required 67 per cent, or 3,800,000 pounds, other knit goods 9 per cent or 500,000 pounds, and broad woven goods 23 per cent or 1,300,000 pounds. In 1937, though the percentage of total poundage dropped in the case of hosiery manufactured with rayon from 67 per cent to only 5 per cent, there was an increase in actual poundage from 3,800,000 pounds to 12,700,000 pounds for hosiery, 15 per cent consumed by other knit goods or 38,800,000 pounds, for broad woven goods 75 per cent or 196,800,000 pounds, and for narrow woven fabrics, which consumed only 1 per cent of the total poundage in 1916, there was an increase to 3 per cent or a total of 7,200,000 pounds. Though narrow woven goods were low in percentage consumption, the actual poundage consumed by this class of goods was more in 1937 than the total consumption of all rayon in 1916.

Although the trend in all other trades is toward a greater consumption in rayon *poundage* and a smaller *percentage* of the total consumption, both a greater percentage and a greater poundage of rayon is being made into broad woven goods. In the distribution of rayon by trades during 1937, the broad weaving industry showed some gain over 1936, but all types of outlet were badly hit by the depression of the closing months of 1937. A noteworthy gain by rayon during 1937 was its continuing increased use in fine woven lingerie fabrics, especially at the expense of silk. The accompanying table shows the various fabrics into which rayon and silk yarns go.

The 1937 world production of filament rayon was 1,125,000,000 pounds. Of this, 325,000,000 pounds (29 per cent) was made in Japan. The United States produced 312,236,000 pounds (28 per cent) of the world production of filament rayon.

The 1937 world production of staple fiber was 600,000,000 pounds. Of this, Japan produced 175,000,000 pounds. The United States Production of staple fiber was 20,100,000 pounds or about 3 per cent of the world total. Substantial gains in staple fiber were made in 1937 by Germany and Italy.

During 1937 the United States imports of staple fiber were 20,250,000 pounds, or slightly more than its own production. The domestic production of staple fiber has increased yearly, being nearly 10 times as great as it was five years ago and 63 per cent greater than the figures for 1936.

The production of rayon yarn in the United States has shown a steady increase yearly except for a couple of spasmodic drops, at the end of which the production picked up considerably to offset the decrease. The trend of domestic production and domestic consumption have gone along at practically the same pace.

1937 CONSUMPTION OF RAYON YARNS AND SILK
(As estimated by the Textile Economics Bureau)

	Pounds of Yarn	
Woven Goods	Rayon	Silks
Dresses	138,000,000	6,200,000
Piece Goods (sold by the yard)	16,500,000	2,000,000
Linings	22,000,000	500,000
Underwear (also see Knit Goods)	20,000,000	5,500,000
Velvets	5,000,000	1,500,000
Neckwear Fabrics	4,000,000	800,000
Narrow Fabrics, Ribbons, etc.	6,000,000	1,000,000
Marquisettes	2,500,000	.....
Bedspreads	4,000,000	.....
Tapestries, Draperies, Upholsteries	11,500,000	100,000
Knit Goods		
Circular-Knit Underwear	26,000,000	.....
Hosiery	14,000,000	35,000,000
Flat-Knit Underwear and Gloves	7,000,000	100,000
Knit Outerwear	8,000,000	300,000
Other Knit Goods	500,000	.....
All other uses	15,000,000	1,000,000
Total	300,000,000	54,000,000

This table is an estimate showing the various fabrics into which rayon and silk yarns go . . . . . .

COTTON is still king. According to the *Rayon Organon*, consumption of cotton, wool, rayon, silk, and linen in the United States reached a total of 4,374,900,000 pounds during 1937. Of this total poundage, 83 per cent consumed was cotton. Wool was next with 8.1 per cent, following closely by rayon with 6.9 per cent, and trailed by silk with 1.2 per cent and linen with .8 per cent.

The consumption of each fiber was less than the preceding year of 1936 in each case except cotton, which continued its yearly poundage consumption increase so that it brought the total poundage of all fibers consumed well above the record set for any previous years. More cotton was consumed during 1937 than during any previous year. 7,424,135 bales of cotton were consumed during 1937, exceeding the previous high of 7,405,021 bales.

Over a period of 18 years wool consumption has been fairly evenly distributed annually, whereas rayon has jumped from a consumption of 8,700,000 pounds in 1920 to 301,500,000 pounds in 1937. Silk also has doubled its poundage consumed since 1920 and in 1937 there were 53,600,000 pounds used.

Exports of cotton for the five months ending December 1937 amounted to 3,184,766 bales compared with 2,896,802 bales recorded in the same period of 1936, on an increase of 9.1 per cent. Exports were lower to Canada, China, Spain, and especially Japan. The decreased takings of these countries, however, have been more than offset by larger exports to all other countries. Cotton prices in January 1938 averaged 8.6 cents per pound, as compared with a December 1937 average of 8.3 cents per pound.

Paul Seydel, in Australia, Finds Sheep Wearing Coats Made of Cotton Duck

(EDITOR'S NOTE: *We share with our readers the following letter from Paul Seydel, president of Seydel-Woolley Company, Atlanta, who, with Mrs. Seydel, recently made a 30,000-mile trip Down Under, visiting Hawaii, New Zealand, Australia, and other points. In Australia he encountered a novel use of cotton duck, which we know will interest the New Uses Section of The Cotton-Textile Institute, and textile manufacturers generally.)*

A flock of sheep wearing cotton "rugs" at Dalkeith.

EDITOR COTTON:

While in Australia, I encountered something that should be of interest to textile manufacturers and cotton growers. I was a guest of Sir Frederick McMaster, at his sheep ranch. His does not cover as much ground as the very largest Australian ranches (or stations as they are called there), as some of them cover more than a million acres—but Sir Frederick has the distinction of producing the finest sheep and the finest wool. Not long ago he sold one ram for approximately $25,000. His flock of sheep numbers 30,000—not the largest in Australia, but probably the most valuable flock per head. Sir Frederick is well known in Australia as a fine sheep breeder and philanthropist. He contributes large sums of money to numerous institutions; one of them, for the study of sheep diseases, carries his name.

While on his ranch, my attention was called to a number of sheep wearing coats such as the pet dogs in New York wear to protect them against the cold. These coverings for the sheep are called "rugs", and they are made of cotton duck. They are constructed with adjustable cords on the back so that the rug can be increased in size to fit the animal as the fleece grows. They are used to keep the sheep warm and dry in the severest weather, and to protect the fleece.

Sir Frederick assured me that the advantages of so covering the sheep after they are shorn in the cold days of early spring, to improve the fleece and to improve the health and meat of the sheep, are such that no owner in his position can afford to leave his sheep uncovered in the future, as he would be at a disadvantage with those who will eventually cover their sheep. He had just ordered 15,000 rugs and intends to secure enough to cover the remainder of his sheep.

Authoritative reports of tests and results in using these rugs disclose a distinct improvement in the quality of the fleece and character of the meat of the sheep, through the use of these coverings. "The comparison between fleeces of rugged and unrugged sheep was overwhelmingly in favor of the former. Staple was at least half inch longer, the wool was denser, better nourished and better grown, and there was absolutely no tip except on the head and neck, which were not covered by the rug. Staple was clean and sound, and the crimp was carried right to the tip.

"The increased commercial value of these rugged fleeces is considerable. Because of the absence of waste in tip the percentage of noil in combing would be reduced to a minimum. A woolbuyer who inspected the sheep ventured the opinion that the rugged fleeces would yield 8 to 10 per cent higher than the unrugged. * * * The most noteworthy feature was

Sir Frederick and Mrs. Seydel with two rugged sheep at Dalkeith . . . . . .

the clean, soft-handling fleeces, with practically no sign of lamb-tip except on exposed portions."

The number of sheep in Australia, I am informed, is nearly as great as the human population of the United States, and this is only a part of the sheep population of the world. If all sheep raisers could be convinced of the value of covering their sheep with cotton rugs, this would mean a great new outlet for cotton goods.

Sincerely yours,

PAUL SEYDEL

The Why and Wherefore of FABRIC DESIGNING

By T. O. Ott, Jr.

(Article 2)

THIS IS the second of a series of articles on designing, in which the author is not attempting to release a specialty fabric for production purposes to the readers, but in which he gives the "why and wherefore" of each step in the designing process. The first article appeared on page 56 of the January issue and showed the developopment of a fabric for which there was no sample. This one is a study of fabric analysis for duplication, and method of computing costs . . . . . .

OF ALL the multitude of things a designer must know fabric analysis is the most essential. Here not only does he have the opportunity of seeing just what makes a fabric what it is, but countless little details are analyzed and stored away for immediate or future use. When the analysis is complete the designer should have the entire process of manufacture within his grasp so that he may chart the process for others.

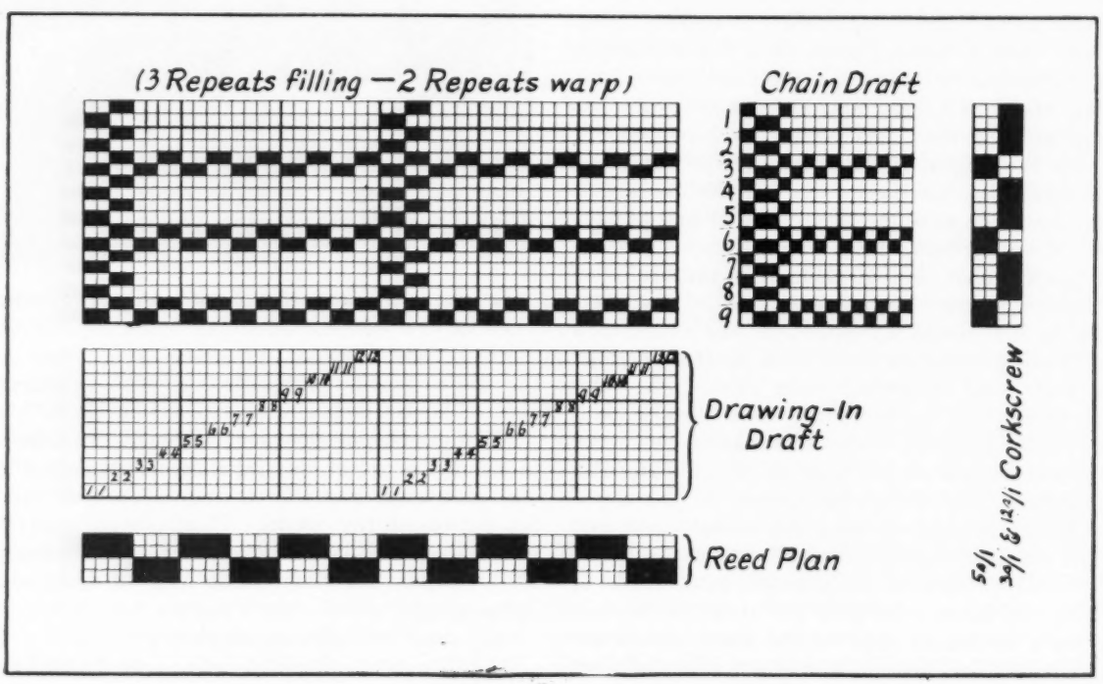
Valued comparisons of constructions from the standpoint of cost are obtained. In some fabrics the cost to the fourth decimal point may be important while in others wide margins are permissible. Only by continued practice in fabric analysis can the designer really know fabrics.

To be able to cover this phase of his work profitably the designer must be thorough in his analysis. However he must use all the ingenuity possible to cut down on the details he must follow through.

Some very helpful instruments are in use today which are great time savers. On very finely constructed fabrics, instruments of special construction are most essential. For the majority of fabrics a sufficiently accurate analysis is obtainable with the following instruments.

1. A one-inch pick glass of the standard folding type for counting ends and picks and for close examination of fabrics and yarns.
2. A pointed wire or pick to locate picks or ends and to dissect fabrics.
3. An ordinary 12-inch ruler for measuring areas and contractions.
4. A pair of yarn scales for determining sample weights and yarn counts. The regular mill grain scales are usually available for this. Direct reading yarn balances are a very helpful supplement.
5. A twist counter is essential to analyze yarn effects. This is very necessary for novelty yarns as each yarn has a special make-up that cannot be guessed at.
6. A slide rule for rapid calculations.

The writer has used the direct reading yarn balance for some years. It is particularly good for determining yarn counts where only small amounts of yarn are available. These small and delicate balances are furnished with templates for cutting standard lengths of yarns in cotton, wool, or linen, for direct weighing. When the correct template is used and the



correct number of yarn lengths are placed on the hook, the yarn count is equivalent to the number of lengths placed thereon.

To illustrate a procedure in analysis of a fabric, an actual sample will here be dissected step by step. An 8 x 8-inch swatch was received. All fabric and yarn constructions are to be determined along with cost data, these data to be supplemented with a point paper design of the pattern and chain draft, draw-in-draft, and harness chain, if any. (See accompanying design, chain draft, drawing-in draft, and reed plan.)

A 6 x 6-inch swatch was cut from the sample and found to weigh 95 grams. The fabric width being 50 inches, a general standard on draperies, all subsequent calculations will be based on this width.

Note: A 6 x 6-inch equals 36 square inches, a multiple of a yard which allows cancellations in formulas. A template of fiber board is convenient for cutting such swatches.

1. Weight of Fabrics

(a) Ounces per Yard:

(1) Formula: Oz. per Yard

$$= \frac{\text{Wt. in Grs. of Swatch} \times \text{In./Yd.} \times \text{Fabric Width}}{\text{Area Swatch} \times \text{Grs. per Ounce}}$$

$$\text{Calculation } \frac{95 \times 36 \times 50}{36 \times 437.5}$$

For a 6x6-inch swatch, the area of swatch cancels inches per yard and we have:—

$$\frac{95 \times 50}{437.5} = 10.87 \text{ Oz./Yd.}$$

The formula for a 6x6-inch swatch would then be:—

(2) Formula: Oz. per Yd.

$$= \frac{\text{Wt. Grs. 6x6-in. Swatch} \times \text{Width Fabric}}{\text{Grs. per Ounce}}$$

(b) Pounds per Yard:

(1) For any size swatch—

Formula: Lbs./Yd.

$$= \frac{\text{Wt. Grs. Swatch} \times \text{In./Yd.} \times \text{Fabric Width}}{\text{Area Swatch} \times \text{Oz./Lb.} \times \text{Grs. per Ounce}}$$

(2) For 6x6-inch swatch—

$$\text{Formula Lbs./Yd} = \frac{\text{Wt. Grs. Swatch} \times \text{Fabric Width}}{\text{Oz. per Pound} \times \text{Grs. per Ounce}}$$

$$\text{Calculation } \frac{95 \times 50}{16 \times 437.5} = .68 \text{ Lbs./Yd.}$$

(c) Yards per Pound:

(1) For any size swatch—

Formula: Yds./Lb.

$$= \frac{\text{Area Swatch} \times \text{Ounces per Yard} \times \text{Grs. per Oz.}}{\text{Wt. Grs. Swatch} \times \text{Inches/Yd.} \times \text{Fabric Width}}$$

(2) For 6x6-inch swatch—

$$\text{Formula: Yds./Lb.} = \frac{\text{Oz. per Yd.} \times \text{Grs. per Oz.}}{\text{Wt. Grs. Swatch} \times \text{Fabric Width}}$$

$$\text{Calculation} = \frac{16 \times 437.5}{95 \times 50} = 1.47 \text{ Yds./Lb.}$$

These calculations are recorded on the "Fabric Specification Record" shown completed in Fig. 1. (These figures were corrected later in the analysis so the *exact* figures do not appear as calculated at this point.)

2. Yarn Contraction

Several strands of warp were then pulled from the 6x6-inch swatch and measured after pulling out the kinks caused by the weave. The same operations were repeated with the filling yarns. Measurements were recorded as follows:—

	Length in Cloth	Length of Strands
Warp 20s/1	6 inches	6¼ inches
Filling 5s/1	6 inches	6½ inches
Filling 3s/1 and 12s/1.	6 inches	6½ inches

Contraction is figured in per cent of difference in original length of yarn to length of yarn in cloth.

(a) Formula Warp Contraction

$$\text{Warp Contraction} = \frac{\text{Original Length} - \text{Length in Fabric}}{\text{Original Length}}$$

$$\text{Calculation} = \frac{6\frac{1}{4} - 6}{6\frac{1}{4}} = 4.0 \text{ per cent warp contraction}$$

(b) Formula Filling Contraction (Same as warp)

$$\text{Calculation} = \frac{6\frac{1}{2} - 6}{6\frac{1}{2}} = 7.7 \text{ Per Cent Filling Contraction}$$

FABRIC SPECIFICATION RECORD

		100%	80%
STYLE	100% IN 40 HRS. YDS.	504	407
SAMPLE N° 1	LBS. OF CLOTH PER WEEK	338	278
WEAVE Novelty	LBS. OF WARP PER LOOM PER WEEK	24-20/1	24-20/1
WIDTH FROM LOOM 50"	LBS. OF FILLING PER LOOM PER WEEK	120-5s/1	120-5s/1
OZS. ON 50" INCH 10.94-6.82-1.46	FILLING CONTRACTION	7.7%	
REED (DENTS PER INCH 21.22 & 21.29	WARP CONTRACTS	4.0%	
ENDS IN DENT 4	ENDS ON BEAM	4600	
WIDTH IN REED 54.5"	SELVAGE 24 ends 18s/2 extra		
N° OF HARNESS USED 12 plus 2 selvage	ROLLS ON LOOM BEAM 2 1/4 INCH HEAD	20"	
HARNESS EYES PER INCH 7.07	YARDS ON LOOM BEAM 1108 INCH HEAD	20"	
ENDS IN EYE 2	WEEKS RUN ON LOOM BEAM 2 1/2		
WARP YARN 20s/1 or 19 1/2 slashed count	LENGTH ROLL FROM LOOM 50 yds		
WARP % 46.39	KIND OF LOOM ASSIGNED 4 X 1-72 inch Crk		
FILLING YARN 5s/1 - 3s/1 and 12s/1 corkscrew	WIDTH OF LOOM ASSIGNED 72 inch		
FILLING % 10.35 - 43.26	WEAVER	BATTERY HAND	
PICK GEAR 16-17 in cloth	PRICE PER YD	$.00614	$.00366
PICKS PER MINUTE 130	SALES PRICE		

REMARKS: The writer uses pounds per yard in all calculations

Cost of yarn .2225
" " Dying .0398
" " water .0082
Total cost .2705

FIG. 1

3. Ends and Picks per Inch, Ends in Warp, Pick Gear.

Actual counting of the ends and picks using the pick glass and picks yield the following:—

Ends per inch (Sley) = 92
Picks per inch = 17

The standard width of the drapery being assumed as 50-inch finished, for ends in warp exclusive of selvage these were 92 × 50 = 4600 ends in body of warp. 24 ends of 18s/2 were added for selvage. 12 for each selvage.

On the pick gear an estimate of 16 pick gear for a loom constant of one was assumed because the fabric will contract after weaving enough to add one or two picks. The pick gear is usually a matter of a rough estimate and experiment as no general rule would apply to all fabrics. This is because the shrinkage is a function of weave, construction, yarn diameters, and warp tensions.

At this point the yarn counts were found for each yarn in the fabric. The author used a pair of direct reading yarn balances mentioned previously and found the counts to be:

Warp — 19s/1 slashed — 20s/1 unsized

As 19s/1 was obtained on the balances for the sized yarn the count of the unsized yarn was found by calculating for the yarn minus 10 per cent size. To be exact the yarn must be desized before weighing.

Filling — 5s/1
Filling — 3s/1 and 12s/1 twisted to form a corkscrew

The 3s/1 and the 12s/1 were separated and several lengths were weighed separately to determine the respective counts. Since the fabric was not sized in finishing no allowances were necessary as the exact count was found from the yarn.

The counts of any of the yarns may be determined with the yarn grain scales by weighing a definite yardage of each yarn and calculating from the formula:

$$\text{Yarn Count or H.R.} = \frac{8.33 \times \text{Number Yards}}{\text{Wt. grs. of Yards Weighed}}$$

The twist per inch in the warp were found to be standard warp and the twist in the 5s/1 filling and in the 12s/1 binder for the corkscrew were standard filling twist. The 3s/1 had a soft twist in order to give a fullness to the corkscrew when twisted. A more detailed discussion of the determination of twists will be given in another article entitled "Yarns and Their Analysis."

The 17 picks per inch included picks of 3s/1 and

12s/1 corkscrew, and 5s/1 filling. To obtain the average picks per inch of each filling the following rule comes in handy:—Measure off a section in which the repeat of filling repeats evenly. With 4 picks of spiral and two picks of 5s/1, an even repeat is obtained in 5½-inch warp ways. In this distance there are 30 picks of 5s/1 and 60 picks of 3s/1 and 12s/1 spiral or 30 ÷ 5½ = 5.45 picks per inch of 5s/1 and 60 ÷ 5½ = 10.90 picks per inch of 3s/1 and 12s/1 corkscrew. The average picks per inch is then a little less than 17 or 5.45 + 10.90 = 16.35 picks per inch. These data are useful later in calculations under paragraph 7, Weight of Filling in Fabric.

4. Width in Reed

With the width of the fabric 50 inches and the filling contraction 7.7 per cent the width in reed between selvages is calculated.

(a) Formula for width in reed:

$$\text{Width in Reed} = \frac{\text{Width from Loom} \times 100}{(100 - \text{Filling Contraction})}$$

$$\text{Calculation:} \frac{50 \times 100}{(100 - 7.7)} = 54.2 \text{ inches}$$

This means that the 4600 ends of 20s/1 must be spread over 54.2 inches in the reed to allow for filling contraction. The selvage adds ¼-inch approximately making 54½ inches in reed.

5. Reed Dent

The logical way to find the reed dents per inch is:—

(a) Formula reed dent:

$$\text{Reed Dent} = \frac{\text{Ends in Warp}}{\text{Width in Reed} \times \text{Ends per Dent}}$$

$$\text{Calculation} = \frac{4600}{54.2 \times 4} = 21.22 \text{ Dent Reed}$$

Note:—It was decided to use 4 ends per dent due to character of draw. (See Fig. 2).

The nearest stock reed was a 21.29 dent spread 69 inches which was close enough to be practical.

6. Weight of Warp in Fabric

For the weight of warp in one (1) yard of fabric a calculation is made:—

(a) Formula: Weight Sized Warp in Fabric:

Weight Warp in Fabric (in Lbs.)

$$= \frac{\text{No. Yds. Fabric} \times \text{Ends in Warp} \times (100 + \text{Per Cent Size})}{(1 - \text{Per Cent Warp Contraction}) \times \text{Yarn No.} \times 840}$$

$$\text{Calculation:} \frac{1 \times 4600 \times (100 + 10)}{(100 - 4) \times 20 \times 840} = .314 \text{ Lbs. per Yd.}$$

$$\text{Selvage} = \frac{1 \times 24}{(100 - 7.7) \times 9 \times 840} = .00344 \text{ Lbs. per Yd.}$$

(Size factors are omitted for unsized warp.)

Total Lbs. per yard of warp = Wt. body + Wt. Selv.
.314 + .0034 = .3174 Lbs.

7. Weight of Filling in Fabric.

The factors affecting the weight of filling in a fabric are width of warp in reed, picks per inch, and yarn numbers.

(a) Formula: Pounds Filling

$$= \frac{\text{Yards Cloth} \times \text{Picks per Inch} \times \text{Width in Reed}}{840 \times \text{Yarn Numbers}}$$

Calculation for 5s/1 in 1 yard of fabric:

$$\frac{1 \times 5.45 \times 54.5}{840 \times 5} = .0708 \text{ pounds per yard.}$$

Calculation for 3s/1 and 12s/1:—

$$\frac{1 \times 10.90 \times 54.5}{840 \times \text{3s/1 and 12s/1}} = .2960 \text{ pounds per yard.}$$

(Average count of 3s/1 and 12s/1 or 2.4s is used in this calculation—secured by 3 × 12 ÷ 15—product ÷ sum of numbers = average count.)

8. Total weight of One (1) yard in pounds per yard.

The total weight of one (1) yard of this fabric is weight of warp plus weight of filling. In this case:—

20/1 + 5/1 + 3/1 and 12/1
.3174 + .0708 + .2960 = .6842 pounds per yard

Now a check on the total weight of a linear yard of this fabric as figured from the swatch and as figured from the yarn counts show a difference.

From Yarn .6842 — From Swatch .68 = Difference .0042

$$\text{Error} \frac{.0042}{.6842} = .6 \text{ per cent.}$$

This checks within practical limits so .6842 is taken as the standard weight of the fabric. The yds. per lb. and oz. per yd. were corrected to agree. (See Fig. 1.)

9. Per cent of warp and filling to total weight of the fabric.

Per cent of warps:

(1) Formula:

$$\frac{\text{Wt. Warp in One Yd. of Cloth} \times 100}{\text{Wt. of One Yard of Fabric}} = \text{Per Cent Warp}$$

(Decimal pounds are used in all calculations. However, ounces and grains may be just as readily substituted.)

$$\text{Calculation:} \frac{.3174 \times 100}{.6842} = 46.39 \text{ Per Cent Warp}$$

Per cent of filling:

(2) Formula:

$$\frac{\text{Wt. Filling in One Yard of Cloth} \times 100}{\text{Wt. of One Yard of Cloth}} = \text{Per Cent Filling}$$

Calculation:
(Each filling is calculated separately)

$$\text{For 5s/1} \frac{.0708 \times 100}{.6842} = 10.35 \text{ Per Cent Filling}$$

For 3s/1 and 12s/1 corkscrew

$$\frac{.2960}{.6842} = 43.26 \text{ Per Cent Filling}$$

All these percentages were entered on the Specification Record as shown, Fig. 1.

10. Production Calculations.

General production figures were now in order so that the cost of weaving possibilities might be studied.

(a) 100 per cent production for 40 hours.

This calculation is always the starting point of all production figures. General experience and knowledge of the weaving qualities of other similar fabrics allows the designer or overseer to set a standard of possible performance at from 60 per cent to 95 per cent of the 100 per cent production figure to allow for all necessary stoppages.

(1) Formula:

$$\frac{\text{Picks per Min.} \times \text{Min. Operated}}{\text{Picks per Inch} \times 36} = \text{100 Per Cent Production in Yards.}$$

(The loom to be used in our case was a 25 harness dobby 4/1 C & K 72-inch Cotton King automatic loom, 130 P.P.M.)

$$\text{Calculation:} \frac{130 \times 2400}{17 \times 36} = 509 \text{ Yards in 40 Hours}$$

In this case I assumed that the fabric would run at 80 per cent efficiency. Then 80 per cent of 509 yards would be 407 yards. On an 8-loom stand then 8 × 407 or 3256 yards for 40 hours would be attainable. This is important as a basis for figuring the cost of labor and overhead on a particular fabric. These figures will be referred to in discussing fabric costs.

(b) Pounds of Cloth Per Week (40 hrs.).

This information is secured to give a check on yarn consumption.

(1) Formula: Yards Cloth per Week at 80 Per Cent efficiency × Pounds per Yard = Pounds Cloth per Week.
Calculations: 407 × .6842 = 278 Pounds Cloth Per Week per Loom.

(c) Pounds Warp and Pounds Filling Per Week.

(1) Formula: Pounds Cloth per Week × Per Cent Warp = Pounds Warp per Week.
Calculation: 278 × .4639 = 129 Pounds Warp per Week per Loom.

(2) Formula: Pounds Cloth per Week × Per Cent Filling = Pounds Filling per Week per Loom.
5s/1 Calculation: 278 × .1035 = 29 Pounds per Week per Loom.
3s/1 and 12s/1 Calculation: 278 × .4326 = 120 Pounds per Week per Loom.

From the number of looms on a fabric an accurate check on the yarns needed can be forecast from these figures.

(e) Yards Warp on Loom Beam and Cuts Per Beam.

This information is very useful for checking the warps ahead of the loom. In our case the loom beam has a 5-inch barrel, a 20-inch head and is 68 inches between heads. To calculate this, employ this very useful formula:

$$\text{Yds. on Loom Beam} = \frac{(\text{Dia. Barrel} + \text{Dia. Head}) \times \text{Diff. in Dia. Barrel and Head} \times .7854 \times \text{Beam Length}}{\text{Pounds to Yd. of Warp} \times \text{Density Yarn in Cu. In. per Lb.}}$$

This weight of warp yarn per yard is calculated from formula (6 a) leaving out the warp contractions as the warp on the beam is not affected by same. The calculated weight of warp would then be .301 pounds. The yarn density is assumed as 60.

$$\text{Calculation: } \frac{(5+20) \times 15 \times .7854 \times 68}{.301 \times 60} = 1108 \text{ Yds. on Beam.}$$

The cut length on this drapery would be a maximum of 50 yards so to obtain the cuts per beam:

$$\text{Formula: } \frac{\text{Yds. on Loom Beam}}{\text{Cut Length} \times 1 + \text{Per Cent Warp Contraction}} = \text{Cuts per Beam}$$

$$\text{Calculation: } \frac{1108}{50 \times 1.04} = 21\tfrac{1}{4} \text{ Cuts per Beam}$$

Here the warp connection must be considered because the cut length considered was the length of finished cloth.

For the weeks run on loom beam the total yards on the beam of warp that will make finished cloth or $21\frac{1}{4} \times 50 = 1062\frac{1}{2}$ yards is the basis. $1062 \div 407$ equals 2.6 weeks run or say $2\frac{1}{2}$ weeks.

The foregoing paragraphs complete the fabric analysis and the Specification Record. From these data as recorded in Figure I all other essential information can be obtained as needed; such as weavers' rates and cost data of various kinds. At the time of such an analysis of a fabric as has just been completed, the designer finds it expedient to make a complete analysis of the yarns and yarn constructions necessary for duplication of yarns. This phase of analysis, although very essential, must be covered in an article "Yarns and Their Analysis" as space does not permit their being covered here.

Figuring Fabric Cost from Specifications

Inasmuch as the Fabric Specification Record is a convenient form on which to record fabric cost, a short paragraph or so is well devoted to it at this time. Usually these data are recorded in the space entitled "Remarks" in Figure 1. In this illustration it is necessary to begin with the cost of the finished yarn delivered to the weave room at a finished price. All figures will be arbitrary in the calculations given.

To begin the theoretical yarn weights as calculated from the yarn counts as in paragraph 8 are taken for each of the yarns in the fabric. As the weights are calculated in decimal pounds and the yarn prices are given in cents, a simple multiplication gives the cost of each yarn in a yard of cloth. These data were then compiled as follows:

Pounds Yarn	Kind of Yarn	Yarn Cost per Pound	Cost Yarn in Fabric per Pound
.3174	20/1 White	.2500	.07935
.0708	5/1 colored	.3500	.02478
.2960	3/1 and 12/1 colored	.4000	.11840
	Total cost of yarn in the fabric per pound		.2225

Now the next step obtains the cost of direct labor for the weaving of this fabric. From the paragraph 10 it was estimated at production of 80 per cent that a weaver would make 3256 yards in 40 hours (407 × 8) or production per loom × number of looms per weaver. With a weaver at $20.00 base pay the cost per yard for weaving would be:

$$\frac{20 \times 100}{3256} \text{ or } .614 \text{ of a Cent per Yd.}$$

For the battery hand assuming that she can handle 30 pounds of filling per hour, then in 40 hours she will handle 1200 pounds of filling. From "Pounds Filling Per Loom Per Week" we see that one loom uses a total of 149 pounds per week. With 4 per cent waste this would increase to 155 pounds per week. To obtain the looms that she will handle for the 40 hours $1200 \div 155 = 8$. Therefore 8 looms is a stand for the battery hand as well as the weaver at the 80 per cent production assumed. Supposing that she is paid $12.00 per week then the cost per yard for the battery hand will be:

$$\text{Formula: } \frac{\text{Pounds Filling Handled per Wk.}}{\text{Pounds in 1 Yard of the Fabric}} = \text{Yards cloth in which filling is handled by battery hand.}$$

$$\text{Calculation: } \frac{1200}{.3668} = 3268 \text{ yards.}$$

$$\text{Battery hand cost per yard } \frac{12 \times 100}{3268} = .366 \text{ of a cent per yard.}$$

Thus the weaver cost and the battery hand cost is .614 plus .366 or .98 of a cent per yard. As indirect labor such as fixing, drawing-in, tying-in, and general may or may not be included in the cost of indirect labor, we must assume that the burden and overhead and indirect is a set figure for our calculations and make it arbitrarily, say 3 cents per yard. Then the cost of manufacture would be in this case 3.98 cents per yard or $.0398. This figure is then added to the yarn cost as shown in Figure 1.

Warp waste is assumed as 1 per cent and filling waste as 3 per cent of the cost of the respective yarns.

Cost of Yarn	Per Cent Waste	Cost of Waste
$.07935	1	$.000793
.24780	3	.007434
Total cost of waste		$.008227 or .82 of one cent.

No seconds were figured in the fabric cost as on this fabric the seconds would be so small as to be negligible. Usually this cost would be covered in the contract of sales.

Total cost of fabric:		
Cost of Yarn	$.2225 or 22¼	cents
Cost of Manufacturing	.0398 or 4	cents
Cost of Waste	.0082 or .8	cents
	.2705 or 27	cents per Yd.

These figures are offered as an illustration as the writer realizes the cost methods of each mill is modified for its own use and accounting set-up. However, it is an excellent way for the beginner in in this work to get the grasp of problems involved in fabric costs.

(This concludes the second installment of the series on fabric designing. The third article will appear in an early issue covering another important phase of this subject. Save your installments so you will have the complete series.)

Some Data on Securing Textile Patents . . .

By Oscar A. Geier*

THE FOLLOWING REMARKS relate to textile patents, but the same rules and procedures apply to other patents. Textile patents in general may be classified as (1) machine patents, (2) fabric or yarn patents, such as lastex and fabrics made from it, (3) processes on finishing or treating yarns and fabrics, such as the Tootal patent for crush-proofing, (4) patents relating to chemical for treating fabrics, such as patents covering various forms of dyes, wetting agents, etc., (5) design patents for various prints, and various types and styles of dresses. There are also other miscellaneous patents not fitting into any of these classes such as patents on garment constructions, patents on spools, etc. The United States Patent Office, Washington, D. C., besides granting patents, also has jurisdiction over the registration of trade marks in the textile field.

The life of a patent in this country runs for 17 years from the date of the grant, or from the date of the issuance of the patent, and not from the filing date, as is common in some other countries. This is important because often a patent application is pending for several years. The patent states on its face that the United States of America grants to the patentee the exclusive right to make, use, or sell the invention, but this is really not the case; what really is granted by the government to the patentee is the use of the right to prevent others from making, using, and selling the invention covered by the patent. A patent may be infringed by an invasion of any one of these three rights.

The patent is really a contract between the patentee and the government, and by this contract the inventor agrees to disclose his invention completely to the public and in turn the government places the courts at his disposal to aid him to exclude others from manufacturing, using, or selling the invention for a term of 17 years, at the end of which time the invention becomes public property, unless the patent is renewed, and this can only be done by act of Congress.

If mutual efforts of several persons result in a unitary invention, these persons are joint inventors and must apply for joint patent. *This is the only way to secure a valid patent.* Only the real and actual inventor or inventors should sign the patent papers. An employer or financially interested party must not apply for joint patent or the rights of both parties may be lost.

To be patentable, the invention or discovery must not have been known or used by others in this country or patented or described in any printed publication in this or any foreign countries before the applicant's invention or discovery thereof for more than two years prior to the filing of an application for patent. The invention or discovery must not have been in public use or on sale in this country for more than two years prior to the filing of the application for patent therefor. The invention or discovery must not have been patented in any foreign country or an application filed by the inventor or his legal representatives more than 12 months prior to his application for patent in this country. *The invention must not have been in public use or on sale in this country more than two years prior to the filing of the application for patent.*

To be patentable, an invention must be useful, which means that the invention must be capable of performing a function. The fact that it is more efficient or practical than preceding devices is not sufficient by itself.

A complete patent application comprises a petition, with power of attorney if one is appointed, signed by the inventor with his full name, specification signed by the inventor and an oath signed by the inventor before a Notary Public, a drawing of the invention, and the filing fee. The specification is important and must contain a full description of the invention and the manner or process of making, constructing, and using it. It must be described in such full, clear and exact terms as to enable any person skilled in the art to make, construct, or compound and use it. The claims are the most important part of the patent application. They define the exact limits of an invention. There is always a tendency for the inventor to withhold information that might enable the man skilled in the art to make the invention—many such patents so filed are declared invalid.

Inventors should keep in their files a complete record of any inventions being developed, because often a proceeding is instituted to determine the valid claim of several applications for the same invention. Dates of first drawings and first written descriptions should be verified by a Notary Public with witnesses. The wisest plan to follow is for the inventor to file an application for a patent at an early date and not wait until somebody else has filed an application on the same or similar article.

If an employee, during his hours of employment, working with the employer's materials and appliances, conceives and perfects an invention for which he obtains a patent, he must accord his employer a non-exclusive right to practice the invention.

Design patents are granted, with certain restrictions similar to those for patents, for articles of manufacture, such as dresses, and for surface ornamentation on all sorts of articles such as laces, rugs, and embroideries. The design must involve invention and be ornamental. Designs cannot be protected by copyright.

Trademarks are used to point out clearly the origin and ownership of the merchandise to which the trademark is affixed. Once a trademark loses this character, the property right is destroyed. A trademark may be a symbol, coined word, portrait, etc.

There is a tendency to abstain from patenting inventions in the textile industry and there is also a tendency on the part of the industry to derogate any patent which may be issued, usually on the ground that the matter was well known and used for many years before the date of the patent. A patent should be regarded as a means of insurance to the textile industry, and if companies would promptly apply for patents on all novel features, they would have no cause to complain to the Patent Office for failing to reject patent applications directed to ideas which have long been in public utilization.

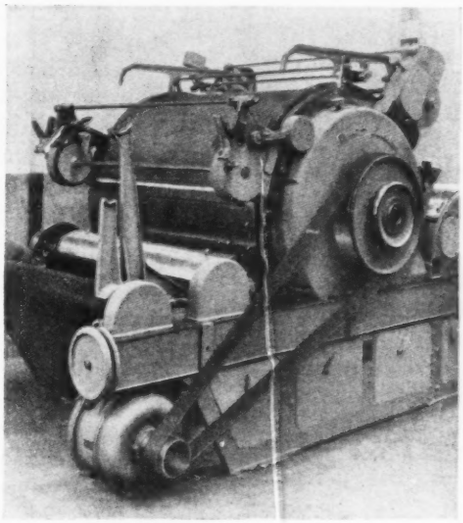
*Textile patent attorney, Richards & Geier, 274 Madison Ave., New York City. Address delivered before American Association of Textile Technologists, Feb. 2, New York City.

Individual Motor Drive on Cards

By an English Correspondent

THE ESSENTIAL problem in the drive of cards in fine cotton spinning mills is to accelerate the card cylinder smoothly and several times a day up to 170 to 220 r.p.m. After starting, the above-mentioned operating speed must be maintained as closely as possible, at a power input of about one kw.

In order that the starting period should be as short as possible and operation economical, the driving motor possesses a high starting torque and good efficiency. Further, special stripping brushes have to be driven which are used for the regular and frequent stripping of the carding-cylinder clothing. To carry out the periodical but less frequent grinding of the latter, the card has to be driven in counter sense. These requirements are simple in themselves but it must be remembered that there are a great number of cards in the mill, as compared to some of the other machines, that they take up considerable space and are placed very close to one another. For this reason, the driving motors cannot usually be placed alongside the machines. The problem to be solved is the lodging of the motor in a very restricted space which, usually means making some constructive alterations to the machines.



If the individual drive of cards has only come to the fore recently, this is due, less to there not having been a satisfactory solution of the question available, than to the slight interest manifested towards the individual drive of cards. The same far-reaching improvements in operation and attendance which accompanied the application of individual drive to other textile machines, was not expected from the individual drive of cards, which machines are infrequently started and always run at constant speed. Group drive was, therefore, adhered to and this all the more so as the problem could, often, be solved with very simple transmission gear.

In a well laid out group of drives there is generally a geared motor drive composed of a high-speed motor and a reduction gear lodged in the bearing shield on the driving side, and this is direct-coupled to the line shaft at 250 r.p.m. Drives like this give good results. Nevertheless, individual drive has been attracting increased attention of late. The better lighting and easier supervision and the reduction in dust resulting from the elimination of the line-shaft transmission gear cannot fail to react favourably on the production figure of cards. It is also of importance whether the operating speed of all cards is exactly maintained or not. Investigation in spinning mills with line-shaft transmission showed that there were speed deviations of 2-4 per cent, usually due to the different states of the transmission belts. Now, this is no poor result but means, nevertheless, that individual drive at exactly maintained speeds must lead to greater production.

If these qualities of individual drive are to be taken advantage of, the power transmission must take place with as small a slip as possible, this apart from the requisite electrical conditions which the motor has to fulfil and which have been mentioned already. The condition of no slip is best fulfilled by using a roller-chain drive which also produces smooth running of the driven machine and permits of bringing the two shafts very close together. Thus, the motor can be lodged in the card bend and close to the bearing of the cylinder. The motor is secured to the cord frame by a cast-iron support and does not project beyond the frame. A totally-enclosed loom motor is used with grease-lubricated roller bearings which, practically speaking, requires no attendance. The chain runs in an enclosed oil bath.

The hand-operated motor-protection switch with thermal release is also built on the machine; it connects the motor straight to the supply system. The card is rapidly brought to its full speed. The hand-operated protective switch can be replaced by one having solenoid control and push-button operation.

Machines with wire clothing are reversed when grinding is necessary, this being carried out by a change-over reversing switch which causes the motor to rotate in the opposite sense. The troublesome crossing of transmission belts, which is necessary with line-shaft transmission is eliminated. The reversing position of the switch is interlocked and can only be released by the operator. When stripping the clothing of the cylinder the motor shaft end which projects from the chain box, and is protected in ordinary service, is now used to mount a cable pulley to drive the cleaning brushes. The grinding cylinders can, also, be driven by this pulley. It should be mentioned that a horizontal or downward-inclined chain or belt is advantageous. This eliminates the danger of the card cylinder being lifted during starting and the cylinder clothing and the revolving flats harming each other by coming into contact. For this reason, mo-

tors mounted above the card are not recommended.

A modern individual belt drive takes this into account. The motor is lodged at the bottom of the card frame and secured in a cradle under the feed roller. The necessary belt pull for efficient transmission is generated by the weight of the motor itself and can be adjusted by a belt-tightening device, through springs. The springs impart a certain elasticity to the motor cradling. The stripping brushes are driven by the cylinder belt pulley which has a groove on the outside for this purpose. The grinding cylinders are driven in similar manner from the other side of the card, for which work the motor is reversed.

Taking "No" for an Answer

When the man stated his grievance the foreman knew that the answer would have to be "No."

He also realized that the man was very wrought up and that a flat rejection would put him in a very rebellious and ugly mood.

Therefore, he proceeded quietly to discuss the whole situation in some detail with the man. He put up many questions the logical answers to which all pointed to the ultimate negative decision.

As the discussion calmly progressed the man gradually cooled off. At the same time he slowly reconciled himself to an acceptance of the fact that "No" would be a fair answer.

—"How to Handle Grievances"; Elliott Service Co., Inc.

Only 38 Cents

An operator complained to his foreman that the adjustment of his machine was not quite right. As a result he was losing out on possible earnings.

The foreman immediately checked up and found that the machine was running such a small percentage below the standard speed that this could hardly have affected the man's earnings appreciably. He had it adjusted to standard speed, however, which satisfied the operator.

To give the operator the full benefit of the doubt, he had an adjustment made of the man's pay back to the beginning of the previous pay period. The adjustment only meant an additional 38 cents, but the evidence of the foreman's desire to be absolutely fair, made a deep and favorable impression upon the man.

—"How to Handle Grievances"; Elliott Service Co., Inc.

Only One Viewpoint

"I know what you're driving at before you go into all the details," the foreman interrupted, "but the trouble with you is that you're not interested in seeing the company's viewpoint!"

Then the foreman proceeded to give the man who had brought up a grievance a long harangue on the company's viewpoint without giving the man a chance to finish presenting his own case.

Finally, after being completely talked down, the man went back to his job with his request rejected, but his mind unchanged.

The foreman's refusal to listen to his viewpoint had made the worker completely unreceptive to anything the foreman had to say about the company's viewpoint.

—"How to Handle Grievances"; Elliott Service Co., Inc.

A Study of Textile Printing

(Continued from page 55.)

Spray printing has numerous disadvantages, such as the tendency of the spray nozzles to cease operation, the plugging of the perforations of the cylinder, and a tendency for color to stick fast on its surface, plus the difficulty of keeping the cloth, the cylinder and the small spray nozzles working in unison.

One can see that the methods of printing previously described do not readily lend themselves to mass production. One may have the disadvantage of being too cumbersome and expensive, another, mechanical disadvantages which have not yet been overcome, plus the fact that the designs produced are not distinguished by the clean-cut, sharp impressions which are now so much desired. For these other reasons, but largely because of the one of cost, machine or roller printing since it was first developed over two centuries ago has become more and more the medium by which the artists' designs are transferred to woven fabrics, until today probably 90 per cent of the world's printed textiles are processed by this method.

Beginning in the next article, we will give a thorough discussion of machine printing in a practical way, covering the detailed description of the operation of a print works engaged in the printing of various types of textiles, including the color stocks, print room, agers and soapers, etc.

Procedure on Mill Waste

(Continued from page 61.)

whichever of these machines precedes the ring frame. It is especially essential in mills that consume their own yarn in the looms to keep a constant check on counts of yarn, for should irregularities be allowed to run over a lengthy period the result in weaving will be two-fold; first, the irregularities in the yarn may show up in the cloth, particularly where filling is concerned, for if the yarn is not of the same counts in two different cops, the thinner yarn will give the cloth a gray appearance in comparison to the length woven with coarser yarn, causing a bar effect. Second, if the yarn is allowed to run coarse through lack of regular and frequent testing, the cloth will have more weight per yard than it should have, and where goods are sold by the length, the manufacturer will be giving away a corresponding amount of manufactured cotton. This may result in a serious loss.

By keeping constant and careful record as has been described, the manager can see at a glance how his mill is functioning. He has his finger on the pulse of his spinning and has the satisfaction of knowing exactly what is happening inside the plant. Discrepancies, if they occur, cannot last long under this systematic supervision and control. Without these records, many irregularities, especially in the form of unnecessary waste, might go on for years and cost the firm a fortune.

An article on this same subject was prepared by the author for *The Textile Weekly*, of England.

CURRENT TEXTILE TOPICS ....

Talk of the Month

COTTON AND OTHER TEXTILES were in a favorable position, relative to other lines of industry, at the start of 1938. Yet they were not able to make real headway toward recovery in the first two months, although giving promise through that period, because the delay in readjustments of most industries was a retarding influence and the depressing conditions of 1937 were protracted by extreme confusion which the administration was unable to disperse.

Basic readjustments point to improvement

For months there was nothing but talk as a remedy for the ills of business, except that contemporaneously the situation actually was being improved basically by normal processes. Thus in the face of continuing confusion sentiment showed a tendency to brighten by the middle of February. The abnormalities of last year, and even the confusion, appeared at last to have been well liquidated or discounted.

A Bit of Current History

Competent authorities began to forecast a general upturn for the spring in business. At the same time a note of caution was apparent. Without satisfactory adjustment of the relationship between government and business, underlying basic conditions in industry stand to be obstructed by psychological hazards. Automatic forces may bring a temporary surge upward, but a definitely healthy forward movement awaits political and economic harmony.

Cotton manufacturers showed keen foresight as to the outlook for the early part of the year, when they determined to keep production restricted through the first two months or so. Buyers maintained a careful buying policy, pending the time when they should be forced by requirement or led by expediency to extend their purchases further into the future. The low rate of production, meantime, helped mills to resist further pressure for lower prices.

This does not alter the fact that cotton manufactures already had been reduced to unprofitable levels. However, the readjustments in cotton manufacturers, aggravated by the extreme weakness of the raw material incident to a record crop, have put the industry in a favorable position among the textiles as sellers look forward to recovery. Competition of other fibers with cotton, as ever, makes little headway.

On this point the experience of 1937 is interesting. It happens to be pointed out by a trade paper in the rayon branch, *The Rayon Organon*, that the consumption of leading textile fibers in 1937 was larger than in 1936 only because of the increased use of raw cotton. Wool, silk and even rayon showed a lower volume of consumption, in fact, because of the drastic decline in industry during the latter part of the year.

Through the first part of the year the reports on finished cotton merchandise have been somewhat varied, but on the whole the markets appeared to be on a level which promoted consumer interest. The inventory position of both retailers and manufacturers by February was undoubtedly showing great improvement. Retailers for several months had generally been liquidating the stocks accumulated in the ill-fated large covering for what proved to be a disappointing fall trade.

Disappointing Fall Trade

As pointed out by one economic service, the course of trade rarely changes in mid-winter. It was adduced, however, that the national consuming power in the drastic decline of 1937 was not shattered as in the severe depression started in 1929. There has been discussion of whether 1937 marked the beginning of a depression or of a temporary recession in a recovery, but the inventory position, the agricultural situation, the investment or the employment factors are not akin to those of 1930.

At the time of writing, there was even suggestion of a major price movement in raw cotton. It was figured that a stronger trend in the staple might be the constructive force toward a better position in the goods market. Aside from this factor, the severe curtailment by mills and low prices favorable to consumer buyers of finished cotton merchandise were elements to inspire confidence. The chief fear was that the processing tax might again be introduced as a disrupting influence.

Trade Agreements

One other fear was that the adoption of trade agreements with Great Britain and Czechoslovakia might introduce another destructive force into the domestic textile situation. Governmental obsession against an isolationist position by this country tends toward a policy of self-sacrifice. It can do no good to international trade for this country to undermine home industry. Even foreign economists are citing prosperity of the United States as necessary to the well-being of the world.

Among suggestions for restoration of textile markets in general is the idea that manufacturers adopt methods of the newer industries for securing a fair share of the consumer's dollar. *The New York Journal of Commerce* recently printed an article on the aggressive sales methods of such industries, with a question as to why something similar could not be done in textiles. It is at least food for thought.

UP TO THE PRESENT MONTH the cotton mills of New England had made only moderate progress out of the long recession, the leading news through January and February being of readjustments with labor and reports of losses during the past year. The two developments have a normal relationship, although union

workers in accepting wage reductions made protest.

James Tansey, carders secretary and spokesman for the Textile Council in Fall River, said that "the unions forming the Textile Council and affiliated with the American Federation of Textile Operators have voted for a reduction of 12½ per cent under protest, being firmly convinced that a reduction in wages is not a remedy or true solution of the depression conditions or the poor trade conditions in the cotton textile industry."

New England Mill Situation

One after another, the large and small centers of cotton textile production have faced the issue of lower wages. While some differences arose, the spread of reductions has been steady. The statement of Mr. Tansey says merely what is not the remedy of or reason for the depression conditions. Labor offered no solution thereof itself, but did submit to conditions that were a fact and not a theory.

It could have admitted the fact that the final wage advance came inconsistently when the mills were facing a period of declining prices. Wages through the last half of 1937 were at the highest level in history through New England cotton mills. That is the wage scales were highest. Yet prices for cotton goods steadily declined and, reaching the lows for several years, made operation of plants a losing proposition.

Reduce Wages or Shut Down

This was well nigh disastrous to some mills and, as we noted last month, a number would have been indefinitely closed except for the acceptance by workers of a wage reduction. At last accounts it was reported that the Booth Manufacturing Company of New Bedford still might have to liquidate, after closing indefinitely on February 1 because of unprofitable conditions of operation.

Wage cuts brought an immediate reaction from some buyers of goods, in the guise of bids for lower prices. Such bids, however, were not productive of lower prices for goods. As a number of mills were faced with the alternative of cutting costs or going out of business, they could not be induced to reduce their goods anew. Other mills, moreover, made the cuts in order to offset ruinous prices for goods and not to make a lower market.

Passage of the Farm Bill in February was the occasion for expectations of a stronger market in cotton goods, by a stabilizing of the price of the raw staple. The incidence of a demoralized market for raw cotton on the record crop last year was a potent factor in the depression of the goods market. By the same token, the stabilizing of cotton obviously would be a constructive force.

Almost immediately, however, arose the spectre of a new processing tax. One experience has been had with the processing tax and so leaders in the industry were not without experience in forecasting evil consequences of such a class levy. As stated by Russell T. Fisher, president of the National Association of Cotton Manufacturers, the processing levy would be a "sales tax of the worst form."

He predicted that processing taxes, feared by New England congressmen as a possible resort for farm bill financing, would increase unemployment and the cost of living. "Levied on the manufacturer in the hope that the people will not realize it is being taxed," he added, "the processing tax pyramids until the ultimate consumer pays from $2 to $3 for every dollar of benefit paid to the farmer."

This is only one other way in which Washington operates to keep mill men on tenterhooks. New England wool manufacturers have for months been agitating against reduction of tariffs on textiles for the purpose of establishing international trade pacts. They have been joined by cotton manufacturers (not to mention several other lines of industry here) in a concerted move of protest toward carrying trade agreements to the point of jeopardizing domestic enterprises.

In a period of depressing news, some consolidation is found when a constructive bit of information is forthcoming. The citizens of Jewett City, Conn., have raised $100,000 toward the salvation of the Aspinook Company plant and a New York group is reported as putting up $500,000. R. B. Armour, president of the Hartford Rayon Company, of Rockly Hill, Conn., heads the New York syndicate. Plans involved reopening of the mill as speedily as possible.

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The Spring 1938 Conventions

The textile conventions for spring and summer 1938, thus far announced, presage a busy and profitable season. Here are the dates and places of those announced up to press time for this issue, listed chronologically:

Textile Operating Executives of Georgia, carding-spinning discussion, Ga. Tech Y. M. C. A. Building, Atlanta, Saturday, March 19, 9:30 A. M.

South Central Section, American Association of Textile Chemists & Colorists, Andrew Jackson Hotel, Knoxville, Tenn., Saturday evening, April 9.

Southeastern Section, American Association of Textile Chemists & Colorists, Hotel Dempsey, Macon, Ga., Saturday evening, April 23.

Annual Knitting Arts Exhibition, Commercial Museum, Philadelphia, Pa., week of April 25-29.

Annual convention, National Association of Hosiery Manufacturers, Philadelphia, April 27.

American Cotton Manufacturers Association, annual convention, Bon Air Hotel, Augusta, Ga., April 28-29-30.

Cotton Manufacturers Association of Georgia, annual convention, Cloister Hotel, Sea Island Beach, Ga., May 19-20.

Verification

A man complained to his foreman of a pay shortage.

"And this ain't the first time it happened," the man said. "I've been short-changed on and off for the past four or five months."

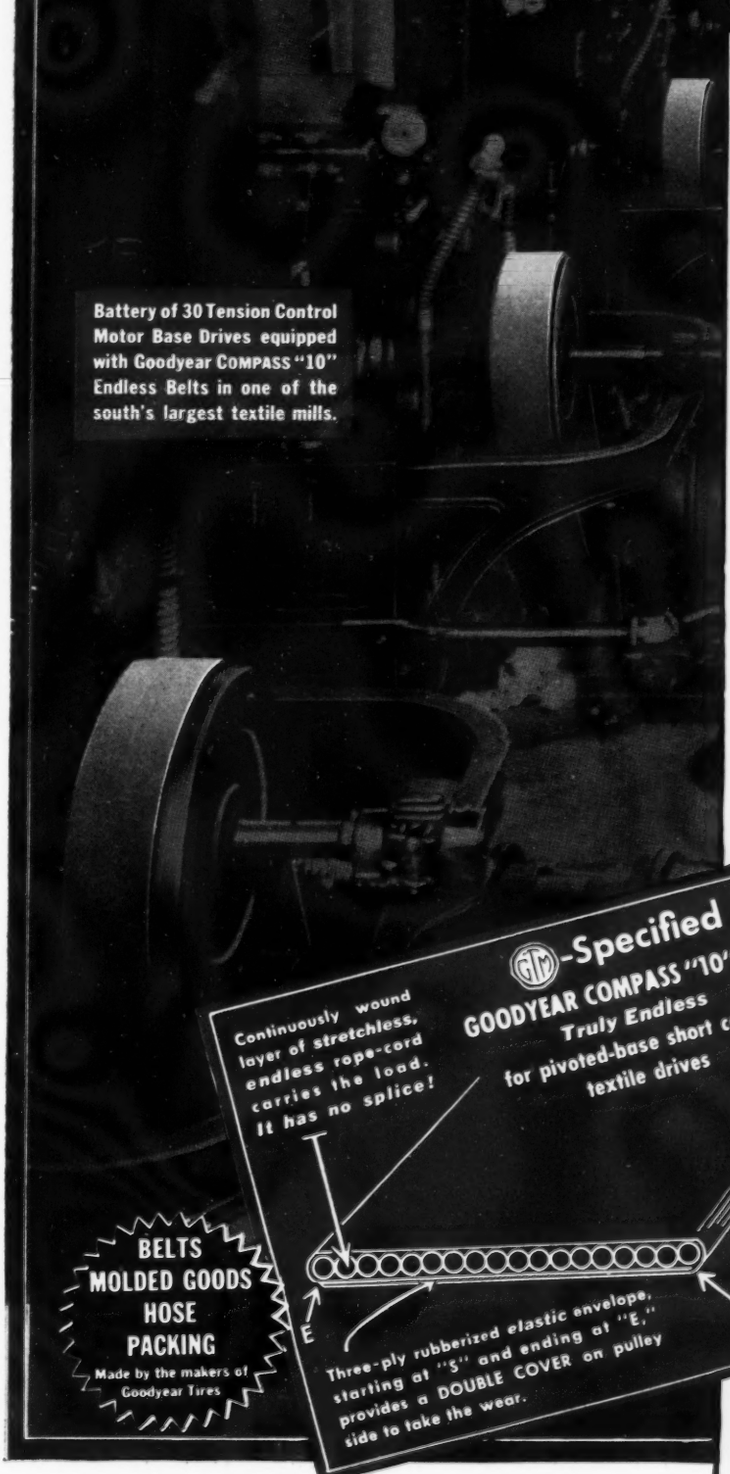
"I'll have your pay checked for the past six months, and if you've got anything coming you sure will get it," the foreman replied.

A thorough check showed absolute accuracy in figuring the man's pay, not only for six months, but for a year back. The foreman laid all of these records before the man so that he could see for himself that no mistake had been made. Do you know anything better than the real facts for settling such a situation?

—"How to Handle Grievances"; Elliott Service Co., Inc.

IT'S GOT WHAT IT TAKES

on Pivoted-Base Drives...



Battery of 30 Tension Control Motor Base Drives equipped with Goodyear COMPASS "10" Endless Belts in one of the south's largest textile mills.

IN changing over from line shaft to individual pivoted-base drives correct belting specification becomes more important than ever before. It is impossible to realize full efficiency with *stretchy* belts that allow the motor to drop too low, changing the tension-ratio of the drive—or with belts possessing low flex-life.

To avoid all such difficulties you need only remember that the Goodyear COMPASS "10" Belt is recommended by leading manufacturers of this type of drive—for three outstanding reasons:

It has the lowest inelastic stretch of any belt made, insuring a constant relationship between pivot point and belt strands.

It is truly endless; has no splice to fail with the constant strain of flexing around short centers.

It has extremely high flex-life because the load-carrying element is built in one plane. There are no plies to separate; no interplaner distortion.

Consult the G.T.M.

Like all Goodyear products for the textile industry COMPASS short center endless belts are individually specified to your operation by the G.T.M.—Goodyear Technical Man—to insure the correct size and weight of belt for most efficient service. He will be glad to give you complete information about this made-to-order belt. To bring the G.T.M. to your office write Goodyear, Akron, Ohio, or Los Angeles, California—or phone your Goodyear Mechanical Rubber Goods Distributor.

G.T.M.-Specified
GOODYEAR COMPASS "10" BELT
Truly Endless
for pivoted-base short center textile drives

Continuously wound layer of stretchless, endless rope-cord carries the load. It has no splice!

Three-ply rubberized *elastic* envelope, starting at "S" and ending at "E," provides a DOUBLE COVER on pulley side to take the wear.

BELTS
MOLDED GOODS
HOSE
PACKING
Made by the makers of Goodyear Tires

THE GREATEST NAME IN RUBBER
GOODYEAR

What the Southern Mills are Doing

LEWARD COTTON MILLS, INC., Worthville, N. C., has improved the weave room by putting down new flooring and painting the interior. Long draft spinning, high speed warping, and automatic looms have also been installed in this mill.

North Georgia Manufacturing Company, Toccoa, Ga., has taken over the old Capps Cotton Mill and is operating it as a thread finishing and packaging plant. It is reported that this company is owned by Clark Thread Company.

Burlington Mills Corporation, with general offices in Greensboro, N. C., has established a branch mill at Bristol, Va., equipped with $300,000 worth of machinery and employing 300 persons.

The Bama Cotton Mill, Enterprise, Ala., has added a new wing to the present plant, part of the construction being one story and part two stories. Additional machinery has been installed and other workers added.

North Carolina Finishing Company, Yadkin, N. C., has completed an addition to the plant, built to take care of increased business. It is one of a number of buildings erected in the last few years.

According to John W. Notes, commissioner of labor, Columbia, S. C., a New England textile concern is planning to locate a plant in South Carolina.

De Funiak Garment Factory, De Funiak Springs, Fla., is having a building remodeled. The company will manufacture shirts and other wearing apparel.

Aragon-Baldwin Cotton Mills, Whitmire, S. C., has constructed a $20,000 addition to the mills with Potter and Shackelford of Greenville, S. C., as contractors.

Avondale Mills, Sylacauga, Ala., it is reported, are planning to add 200 looms for weaving spun rayon and cotton, using 80 per cent rayon and 20 per cent cotton.

Pickens (S. C.) Cotton Mill has let contract to C. M. Guest & Sons, Anderson, S. C., for the purchase of a chlorinator mixer and for repair work and improvements.

Monroe Mills, Monroeville, Ala., will construct an addition to the present plant. Contract has already been let for this work.

A new cotton weaving mill will be erected in Montgomery, Ala., which will employ about 250 persons. Capital was raised locally.

A shirt factory is expected to be located at Blue Ridge, Ga., which will employ about 200 persons, with an annual payroll of about $100,000.

Negotiations are under way to locate a weaving plant at the Maryland state penitentiary, to be operated under the state-use system.

At Newton, Miss., the citizens have approved a $50,000 bond proposal to locate a textile plant in the city.

Nalven & Sons' plant, Clifton Forge, Va., has added 55 new ribbon looms.

Piedmont Section AATCC Meets in Greenville, S. C.

The Piedmont Section of the American Association of Textile Chemists and Colorists held its winter meeting in the Poinsett Hotel, Greenville, S. C., February 19. There were two sessions, the one in the afternoon being devoted to technical subjects and the night session consisting of a banquet followed by several speakers. During the technical program, papers were presented by Dr. Sivert Glarum of Rohm & Haas Company on printing thickeners; by Ben Verity, technical advisor, Carbic Color & Chemical Company, on some of the dyeing and printing problems and their solution; and by E. M. Edgerton, director of style bureau and color research of Pacific Mills, on color demands from the merchandising point of view. General discussion was held after the technical papers on the AATCC wash fastness test.

The main speaker of the evening session was Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, Inc., who presented some pertinent facts concerning the present position of cotton fabrics in the eyes of the consumer and the trend of gains in the consumption of rayon fabrics. He brought out the need for some central agency to study cotton styling and merchandising.

W. M. McLaurine, secretary, the American Cotton Manufacturers Association, also spoke for a few minutes.

R. E. Rupp, chairman of the section, announced that the national convention of the AATCC would be held in Atlanta, Ga., December 2-3, 1938, as guests of the Southeastern Section of AATCC. The next regular meeting of the Piedmont Section will be in Greensboro, N. C., May 7, and the summer outing of the section will be at Myrtle Beach, S. C., June 24-25. Reservations for the outing must be made through Jasper Ivey, The Mathieson Alkali Works, Inc., First National Bank Building, Charlotte, N. C.

Color Fastness Identification

Better Fabrics Testing Bureau of the National Retail Dry Goods Association and E. I. duPont de Nemours & Company, Inc., announced a new program of color fastness identification for textiles. The program includes a new seal of color fastness to be known as the "Color Tested" seal which may be affixed to fabrics which pass standard color fastness tests of the Association's official laboratory. The seal does not indicate absolute color fastness; the plan is based upon fastness tests in keeping with the use to which the consumer will put the finished article. For example, wash fabrics will be thoroughly tested for color fastness to laundering and to reasonable exposure to light—drapery fabrics will be tested for cleanability and prolonged exposure to light, etc. The duPont company has co-operated in the development of the new seal by supplying the Bureau with necessary technical data.

Allis-Chalmers Announces Publicity Personnel Changes

The publicity department of Allis-Chalmers Manufacturing Co., Milwaukee, Wis., for power, electrical and industrial machinery, now has two sections. George Callos has been appointed assistant manager in charge of sales promotion, embracing advertising, bulletins, exhibitions, house organs, etc. A. K. Birch has been appointed assistant manager in charge of market analysis, sales organization service embracing price books, data and sales information, and the distribution of literature.

Ken Bishop Represents Powell in Southeast

W. K. "Ken" Bishop, formerly with The Lunkenheimer Company, Cincinnati, O., is now sales representative for The Wm. Powell Company, Cincinnati, O. He continues his headquarters at his residence, 435 10th St., N. E., Atlanta, Ga.

Excellent! Not so good!

But the difference isn't so apparent in roll coverings!

STRIP several ears of corn and you'll find no two alike. Raw products of nature do not possess the element of uniformity. In a roll covering material, uniformity is essential. But only in a fabricated product do you get the essential *scientific control* which assures uniform high quality. That is why today, more and more mills are changing over to Armstrong's Seamless Cork Cots.

Why so much stress on uniformity? Because it means constant satisfaction from *every* cork cot in operation. The uniformity of Armstrong's Cork Cots is insured by the painstaking precision which surrounds every exacting step of their manufacture. That is why Armstrong's Cork Cots produce better running work and stronger, more uniform yarn. That is why they last longer. That is why, after serving their normal life on the spinning roll, Armstrong's Cork Cots can be made new again, easily, inexpensively.

Because this fabricated material is uniform throughout its entire wall thickness and is not limited to a thin outer layer, it can be precision-ground or buffed to a true and concentric finish—an important factor in spinning quality yarn. Another advantage is the rebuffing feature—these cots may be made new—again and again—your guarantee of roll covering economy.

There is no extra charge for these advantages. The initial cost of Armstrong's Seamless Cork Cots is no more than other types of roll covering material. And you also save through lower assembly costs. More than 6,000,000 active spindles running on cork today are your recommendation of proved performance—greater economy and increased efficiency.

It will take an Armstrong representative but a few minutes to show you production figures of mills spinning your range of numbers. See him when next he calls and you'll learn more about how your mill can benefit by a change-over to Armstrong's Seamless Cork Cots . . . the fabricated roll covering that is always uniform.

Or write today to Armstrong Cork Products Co., Textile Division, 923 Arch St., Lancaster, Pa.

CORK PRODUCTS SINCE 1860

ARMSTRONG'S *Extra Cushion* **SEAMLESS CORK COTS**

COMMENT on the Cotton Market

New Orleans, Feb. 14, 1938

THE REACTIONARY TENDENCY of the last half of January, due largely to the then monetary crisis in France, large ginnings, less activity of the goods market, falling off in spinners' takings, and the increasing movement of the Indian crop, was more than offset by the advance that followed during the first half of February, attributed to a good demand for spots and contracts influenced by the favorable progress of the federal crop control bill, values having advanced through the nine cents level for the first time since last September.

The farm control bill received final congressional approval February 14. The measure, establishing a system under which the secretary of agriculture, in co-operation with farmer committees, may prescribe limitations upon the quantity of wheat, corn, cotton, rice and tobacco grown or marketed, is expected to be signed by President Roosevelt shortly.

While the bill establishes varying approaches for each of the crops affected, in general it directs the secretary of agriculture to make an estimate of the expected supply, set this figure against expected demand and adjust production accordingly.

This would be done by paying benefits to farmers who planted no more than a specified acreage. In addition, in years of bumper crops, the secretary of agriculture would be empowered to fix marketing quotas, limiting the quantities that could be sold and thereby protecting the price. Such quotas would be dependent on a two-thirds vote of farmers taking part in special referenda.

The Commodity Credit Corporation is credited with saying that through February 10 loans on 4,935,974 bales of the 1937 crop were made, the total amount of money involved being $215,977,416, at an average price of 8.38 cents per pound.

It is figured that during the last week the amount of cotton going into the loan was 52,273 bales, against 60,153 the previous week. It is said farmers have until April 1 to obtain loans.

It is evident, therefore, that the supply of free cotton is likely to become smaller as the season progresses. Nevertheless there are some confusing features in connection with other distributing factors this season. Exports from the United States thus far this season are somewhat larger than to corresponding date last season, but spinners' takings, which are more indicative of consumption, are 1,307,000 bales smaller, and consumption itself, not only of American but of foreign growths also, thus far shows smaller than to corresponding date last season, which is not encouraging.

Exports from the United States from August 1 to February 11, compared with same time last season, were 1,282,000 bales to Great Britain versus 831,000; to the Continent 2,308,000 against 1,768,000; to the Orient 424,000 versus 1,051,000, and to Canada 161,000 against 184,000, or a grand total of 4,175,000 compared with 3,834,000.

Spinners' takings of American for the same period, August 1 to February 11, however, make an unfavorable showing. The North and Canada having taken only 860,000 bales versus 1,319,000; the South 3,518,000 against 4,578,000; foreign spinners, exclusive of Canada and the Orient, 2,538,000 versus 2,126,000, and the Orient 560,000 against 760,000, making a grand total of 7,476,000 compared with 8,783,000.

As to the future, much will likely depend upon plans for the next United States cotton crop, that is as to this year's acreage to be planted, weather conditions inland, and trade developments, etc. Large government expenditures are anticipated for relief, housing and for protection of the country on land and sea, while spring buying, which should set in soon, ought to help general business. Meanwhile there is talk of the possibility of some inflation.

GARSIDE ESTIMATES WORLD'S CONSUMPTION OF ALL KINDS DURING DECEMBER

For five months— Bales—	This Season	Last Season
American	955,000	1,127,000
Foreign	1,306,000	1,531,000
All kinds	2,261,000	2,658,000
American	5,066,000	5,311,000
Foreign	6,736,000	7,129,000
All kinds	11,802.000	12,440,000

CENSUS REPORT

United States— Bales—	This Season	Last Season
Consumption of lint, January	435,000	679,000
Consumption of lint, 6 months	3,085,000	3,855,000
Mill stocks, January 31	1,763,000	2,074,000
Stock in public storage and warehouses, January 31	11,772,000	6,779,000
Stock in mills, public storage and warehouses, January 31	13,535,000	8,853,000
Stock in mills, public storage and warehouses, December 31	13,585,000	9,793,000
Active spindles during January	22,327,000	24,400,000
Active spindles during December	22,328,000	24,083,000
Active spindles in Cotton Growing States during January	16,897,000	17,663,000
Active spindles in New England States during January	4,815,000	5,970,000
Active spindles in All Other States during January	614,000	731,000
Consumption of lint in Cotton Growing States for January	373,000	565,000
In New England States	51,000	92,000
In All Other States	11,000	22,000
In the United States	435,000	679,000
Consumption of lint in Cotton Growing States for six months	2,632,000	3,224,000
In New England States	373.000	510,000
In All Other States	80,000	121,000
In the United States	3,085,000	3,855,000

BRITISH BOARD OF TRADE REPORT FOR JANUARY

Year—	1938	1937	1936
Exports of yarn, pounds	11,000,000	14,000,000	13,000,000
Exports of cloth, yards	138,000,000	161,000,000	167,000,000

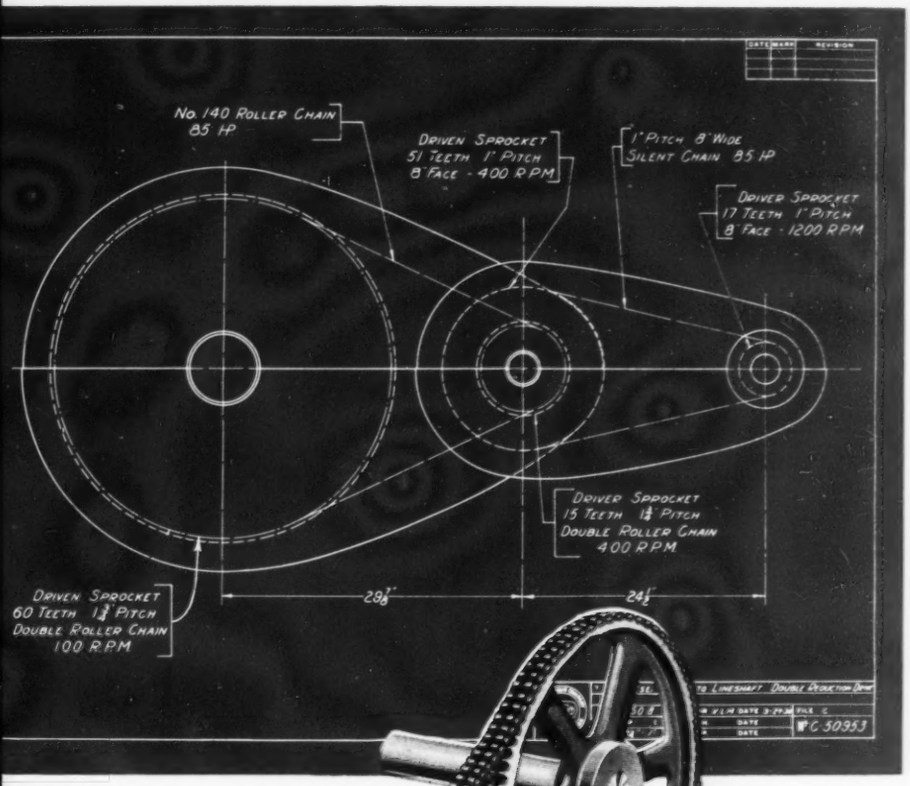
WORLD'S VISIBLE SUPPLY OF COTTON

February 11— Bales—	This year	Last year
American	8,539,000	6,177,000
Other kinds	1,823,000	2,319,000
All kinds	10,362,000	8,496,000

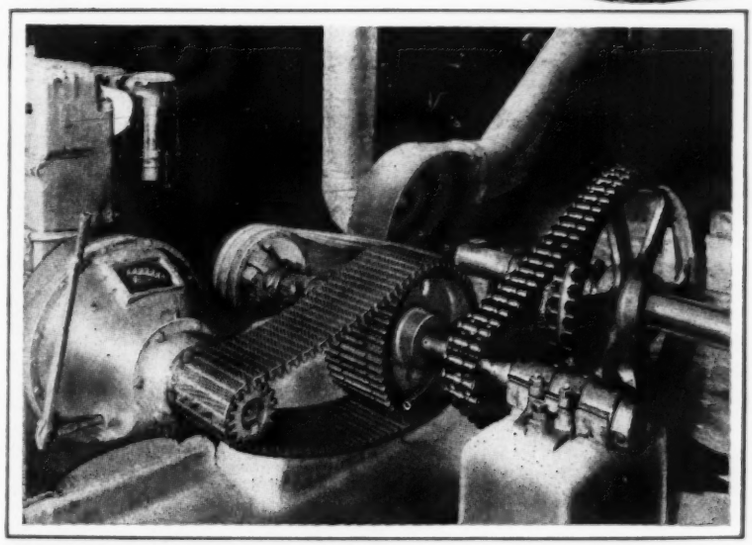
Distributors Announced

Republic Rubber Division, Lee Rubber and Tire Corporation, Youngstown, O., has announced the appointment of Shook & Fletcher Supply Company, Inc., Birmingham, Ala., as distributors for the company's complete line of heavy mechanical rubber products for all types of industrial uses. This department of Shook & Fletcher will be under the managership of Fred Bailey. The Atlanta Belting Company, Atlanta, Ga., has been appointed as Republic distributor for the company's territory in that part of the South.

This MORSE CHAIN INSTALLATION



Costs less Saves Space



This photograph shows the Morse Silent Chain and Morse Roller Chain installed on the diesel engine driven rubber mill. Note the compact, clean arrangement. (Chain cases and oilers are removed for complete views of chains.)

FOR FURTHER INFORMATION SEE OUR CATALOG IN SWEET'S

This clean and compact double reduction Morse Chain drive was installed for less than one half the cost of a gear speed reducer. Replacing flat belts, these chains drive a rubber mill line shaft from a diesel engine more efficiently and save both space and money.

The drive consists of a Morse 1" pitch 8" wide silent chain on a Morse 1¾" pitch double strand roller chain. Greatly increased production resulted when these Morse drives took over their job of power transmission. The print above shows the drives, and the photograph at the left, the installation.

Morse Positive Drives operate with efficiencies up to 99.4%. They are convenient and adaptable in installation and will do outstanding jobs of this sort on many installations. Consider Morse drives for your plant so that you too may benefit from these *better* drives.

The Morse man in your territory is ready to consult with you on every power transmission problem, and back of his experience is that of forty years of successful power transmission with Morse drives.

SILENT CHAINS ROLLER CHAINS FLEXIBLE COUPLINGS KELPO CLUTCHES

MORSE *positive* DRIVES

MORSE CHAIN COMPANY ITHACA N. Y. DIVISION BORG-WARNER CORP.

NEW TEXTILE EQUIPMENT and MATERIALS

Marion Grimes Handles Truck for Large Loom Beams and Other Handling Equipment

The Revolvator Company, North Bergen, N. J., are building a new specially designed hydraulic lift truck for handling loom beams, which is being handled by Marion T. Grimes, Box 198, Gainesville, Ga., along with a complete line of materials handling equipment. The recent trend toward larger loom beams has produced a problem in that in many instances the increased diameter of the beam makes it impractical to transport the beam down the back alleys on the conventional dolly.

The new beam truck shown with the cradle in the elevated position . .

The truck being handled by Mr. Grimes is constructed with a hydraulic lift cradle. The new beam is easily elevated to a height above the beam stands on the loom (and above the lay ends in the cross alleys) and then lowered into place. The lowered height of the cradle is 10 inches, and the raised height is 34 inches. The cradle pivots on the lifting arm, thus simplifying the placing of the beam in the loom. The truck will turn anywhere in the mill where a 40-inch beam will turn. The handle by which the cradle is raised and lowered "stays put" under the beam, and tests have demonstrated that one man can handle the entire operation; by placing one hand on the handle and one on the beam, the truck and beam may be readily handled in close places. The truck is equipped with six wheels, and has a capacity of 1,000 pounds.

Other conveying equipment handled by Mr. Grimes includes cotton stackers, lift trucks, storage racks, electric hoists, electric trucks and trucks of all types. He also represents the Stewart compound and chain drive for roving frames, and a full line of mill supplies.

Mildew-Proof Mill White

The Billings-Chapin Company, Cleveland, O., has developed a new paint, announced as being a commercially practical mildew-proof mill white. The paint is said to contain a special non-yellowing fungicide which is blended into the paint at the time of manufacture and effectively kills the parasitic spores before they can "make themselves at home" on the painted surface. The fungicide content is said to blend smoothly with the oils and oxides without effecting the brushing characteristics or the smoothness of the finished film. The light reflectivity and color life of the paint is not impaired by the presence of the fungicide, it is stated.

◆

Re-set Free-Vane Air Operated Controller

The Bristol Company, Waterbury, Conn., has made available a new control instrument with wide throttling range and automatic reset that provides for point control. The device is of special design and lends itself to ready adjustment by the user to meet the requirements of the process involved. The controllers are adaptable to various types of continuous processes which involve the control of such variables as temperature, pressure, vacuum, flow, and liquid level. It is said that any load change, accompanied by a movement of the pen away from the control point, produces a change in the controlled air pressure of sufficient value to give the diaphragm control valve the required opening to bring the variable back to the control point. The design of the reset operating mechanism makes it possible to obtain this change automatically at a rate that corresponds to that required by the particular process being controlled.

◆

New Line of Pumps

Goulds Pumps, Inc., Seneca Falls, N. Y., has announced a complete new line of single stage, side suction, ball bearing centrifugal pumps in 18 sizes with capacities from 5 to 1800 g.p.m. against heads up to 110 feet for flat or V-belt or direct motor drive. The most modern hydraulic design is embodied in casings, impellers, and stuffing boxes.

◆

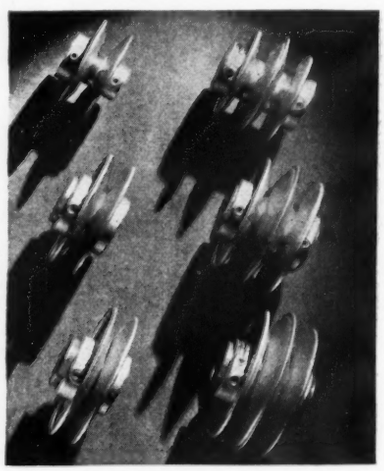
Gate Valves

Morton Machine Works, Columbus, Ga., manufacturers of dyeing and bleaching machines in capacities to dye from 1 to 1000 pounds of yarn or cotton, have made available a nickel iron quick opening handle gate valve for dyeing machines, pipe lines, steam lines, water lines, boiler blow off valves, and throttle valves to resist corrosion and dye chemicals. The sizes are 4-inch, 3-inch, and 2-inch with flanged ends. In cases where screw ends are desired, flanges are furnished.

◆

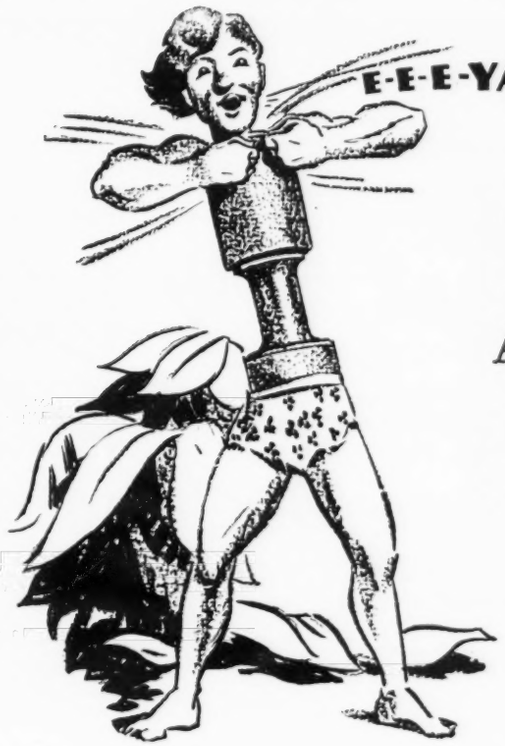
Adjustable Pitch Diameter Sheaves

Allis-Chalmers Manufacturing Company, Milwaukee, Wis., has announced a new series of two groove adjustable pitch diameter texsteel sheaves for speed variation up to 33 per cent on any driven unit. This type of sheave is said to provide a sturdy, inexpensive, easily adjusted, variable speed drive for applications where the required load does not exceed 3 horse power. The pitch diameters on the



Sheaves of adjustable pitch diameter

sheaves are easily changed in a moment simply by stopping the motor, relieving the belt tension, releasing the Allen head locking screw, and turning the adjustable plate in or out to the desired pitch diameter. The sheaves have been newly designed and carry many improvements in construction.



THERE ARE NO "IFS" ABOUT GILLEATHER IT'S A HE LEATHER

The only SAFE roller covering is that which can pass ALL requirements of the 12 Point Test, for failure in any one respect is usually enough to condemn it.

For instance consider what one mill superintendent said about Point No. 2:—

"The manufacturers of a certain substitute claim that their product will retain its cushion and resiliency over the week-end in cold weather, IF you keep the spinning room heated.

"But that's a big IF, because the cost of heating my spinning room over the week-end would pay for my LEATHER roll covering for almost a year."

Of course any old leather won't pass the 12 point test either. It must be GOOD leather, like GILLEATHER, made by 4 generations of specialists in ROLLER leather. This leather is carefully tanned to give maximum toughness to the grain surface of the skins without affecting their "cushion". It is also closely trimmed, 12 to 15 feet of flank per dozen being discarded, which considerably reduces roller shop scrap.

GILLEATHER spins GOOD yarn as long as it lasts. We will gladly tell you on request ALL the reasons why.

THE 12 POINT TEST

1. Does it automatically stop spinning when it makes bad yarn?
2. Does it retain its cushion in all temperatures, and as long as it will draft?
3. Does it resist flattening or fluting over the week-end?
4. Does it require standard diameter arbors, thus eliminating the need for costly changes?
5. Is it impervious to excessive humidity?
6. Does it produce a minimum of eyebrows?
7. Does it eliminate lap-ups as long as it will make good yarn?
8. Does it eliminate cockled yarn, other factors being correct?
9. Does it produce yarn of maximum strength for a given staple, other factors being correct?
10. Does it require a minimum of attention?
11. Does it function properly ALL the time until worn out?
12. Has time proved it any better than the 600 odd "improved" roller coverings that have come and gone?

SHEEP and CALF SKIN

GILLEATHER *for* TOP ROLLS

Salem, Massachusetts

SOUTHERN REPRESENTATIVES

Gastonia, N. C., W. G. Hamner Griffin, Ga., Belton C. Plowden
Greenville, S. C., Ralph Gossett—Greenville, S. C., W. J. Moore
Dallas, Texas, Russell A. Singleton

The stationary part of the hub is cast integrally around the steel plates so that no amount of hard usage or abuse can loosen them. The movable portion of the hub is similarly constructed with sufficient material to form an external brace on the outside plate, thus assuring a smooth, true-running sheave at all times. The company has also added an intermediate diameter texsteel sheave to its single groove adjustable pitch diameter series.

◆

Bench Model Color Matching Lamps

Barkon-Frink Tube Lighting Corporation, 23-10 Bridge Plaza South, Long Island City, N. Y., have made available the Model F lamps, a bench model color matching lamp, supplementing the line of carbon dioxide daylight

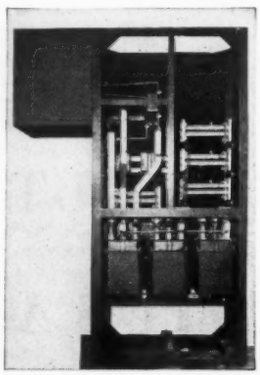
Color matching lamp

lamps. It is said to offer absolute uniformity of illumination and therefore is most suitable for standard color matching. The quality or chromaticity of the carbon dioxide radiation is said to remain unchanged throughout the life of the tube. It is guaranteed for 5000 burning hours.

◆

New Motor Starting and Braking Control

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., have developed a new three breaker combination for motor control containing forward, reverse, and braking oil circuit breakers. Each breaker is electrically operated with an independent solenoid mechanism. The forward and reverse breakers are arranged to close their contacts when the solenoid is energized, while the braking breaker contacts are opened when the solenoid is energized. The brake contacts are spring closed when the mechanism is tripped, this being accomplished by a mechanical cross trip from either one of the other two breakers. The breakers are 25,000 kva rupturing capacity, 7500 volts, 600 am-

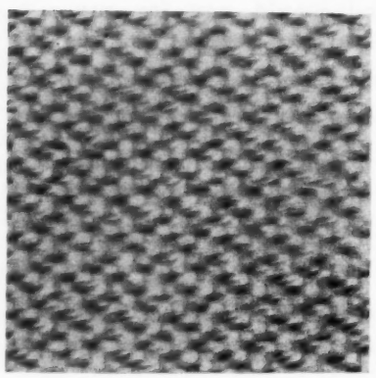


peres, with silver to silver contacts, "De-ion" interrupters, micarta bushings and enclosed construction. The time for energizing the trip coil on either the forward or reverse breakers until the brake contacts make is .125 seconds. Both potential trip coils and under-voltage release tripping devices are used in order to assure positive tripping under all conditions.

◆

Fiberglas Filter Media

Filter Media Corporation, Irvington-on-Hudson, New York, has developed a product that is said to solve the problem of filtering hot or cold acid solutions. It is a cloth that is not only strong mechanically but durable chemically. It is 100 per cent glass, but at the same time is woven so that it functions as would any filter cloth



woven from cotton, wool, or metal. Fiberglas filter media is woven in seven different weaves and weights, each in standard widths of 26, 32, and 38 inches. A complete range of other widths can be obtained to order. It withstands temperatures up to 500 degrees F. and the individual fibers do not swell or otherwise change; the weave does not open up. The fabric is easily cut to fit shapes of different filter elements and is readily sewed with 100 per cent glass thread.

New Spot Oiler

The Dill Manufacturing Company, Cleveland, O., has developed a new spot oiler with a snooping spout that noses into all out-of-the-way places to apply the exact amount of oil needed. The new handy fountain pen like Pres-To Oiler provides advantages in oil

ing by simply pressing the steel point to the part to be oiled, and approximately 1/10 of a drop of oil is ejected. If more oil is required, repeated pressing of the steel point to the spot will eject the proper amount of oil. Thus, no oil is wasted and no part is over oiled.

◆

Dilecto Pipe Ends

Continental-Diamond Fibre Company, Newark, Del., has a new line of products, Dilecto pipe ends, being a molded laminated plastic product. They are said to have high electrical insulating properties, good mechanical strength, are unaffected by water, steam, chem-

icals, or chemical fumes, high or low temperatures, or rapid changes in temperature. The pipe ends are designed to prevent dangerous grounds. They are made in two styles; threaded to fit standard pipe and conduit thread, or plain with three set screws for fastening. Both types are made in standard sizes from ½-inch to 4-inch.

◆

New Method for Carding Company's Belt Hooks

Armstrong-Bray & Company, Chicago, Ill., manufacturers of *Wiregrip* belt hooks and *Steelgrip* belt lacing have a new and novel method of carding their belt hooks which is said to keep each hook in exact position, speeds the loading of the lacing machines, assures perfect alignment, and prevents the usual waste of short ends cut from cards of hooks.

Why Send Your Dollars on a Hazardous Holiday?

It is bad enough that those needed dollars represented by your receivables are off on such a profitless holiday jaunt. But, in addition, you have to worry about when or ***whether*** some of them will return.

Both the sacrifice and the risk are needless, too. Because, under commercial factoring, you can use this idle money in your own business, while continuing to grant the usual credit terms to customers. At the same time, you get rid of credit-checking and collection expense and protect yourself against credit losses.

Why not ask for the further facts now?

COMMERCIAL FACTORS CORPORATION

Fred'k Vietor & Achelis, Inc. Established 1828
Schefer, Schramm & Vogel Established 1838
Peierls, Buhler & Co., Inc. Established 1893

TWO PARK AVENUE, NEW YORK

"Studies in the Cotton Drawing Process"

Under the auspices of the Textile Foundation, Cotton Manufacturers Association of Georgia, and the State Engineering Experiment Station of the University System of Georgia, located at the Georgia School of Technology, a study was made by B. B. Peacock of the various front drawing roll speeds on the tensile strength of 20s yarn, long draft and regular draft, warp and filling, spun from Georgia Upland 7/8-15/16-inch cotton. A report of the findings are available in a treatise entitled *Studies in the Cotton Drawing Process.* In general, it was found that when the front roll speed is increased, the tensile strength also is increased. The investigation did not show the point to which roll speed may be increased to obtain maximum yarn strength. A statistical analysis was made to determine the number of breaking tests necessary for consistent results and this was found to be much higher than is common in present mill practice. A mill check against the laboratory results on 1⅜-inch metallic drawing rolls showed striking similarities.

Stock for the tests was run through a bale breaker, vertical opener, and two Centrif-Air machines before passing to a 3-beater single-process picker. A 60-grain sliver was made on the card. Other conclusions reached were: 1. Increased drawing roll speed results, in general, in an increased tensile strength of yarns produced. 2. At very high roll speeds, the yarn spun from sliver produced with 1⅜-inch metallic rolls has a higher tensile strength than does yarn spun from sliver produced using other types and sizes of rolls at the same speeds. 3. Roll speeds for maximum tensile strength have not yet been determined. 4. At ordinary mill speeds, the 1⅛-inch cork and the 1¼-inch metallic rolls produce sliver which gives uniformly stronger yarn than do 1⅜-inch metallic rolls. 5. There is apparently no significant difference in results obtained by using 1⅛-inch metallic rolls and 1⅛-inch cork rolls. 6. Statistical analysis indicates that the usual number of mill samples taken for testing is insufficient to produce consistent results.

Copies of the bulletin may be obtained for 25 cents each from the Engineering Experiment Station, Georgia School of Technology, Atlanta.

◆

Davison Publishing Company in New Home

Davison Publishing Company, publishers of textile directories, has moved from 50 Union Square, New York City, to 201 East Ridgewood Avenue, Ridgewood, N. J. A new glass block building faced with glass tiling has been constructed in the most modern way. The organization remains unchanged in personnel.

◆

"An Introduction to the Study of Spinning"

Longmans, Green & Company, 114 Fifth Ave., New York City, have published *An Introduction to the Study of Spinning* ($4.50), which is an elementary study of the various fibers used in textile manufacturing, including wool, silk, cotton, flax, hemp, jute, ramie, and rayon. It is profusely illustrated with photomicrographs so that the student may easily understand the character of the fibers he is later to process. Part two of the book goes into the principle of spinning and carding, and takes up roller drafting. A section is included on combing. The author, W. E. Morton, has as his aim to direct the student's attention in the beginning to the fundamental nature of the processes, to show how the evolution of the various modern machines came about, and to exclude all references to confusing mechanical complications until the student is well grounded in the fundamentals.

◆

"A Statement of Accounting Principles"

American Institute of Accountants, 135 Cedar St., N. Y., has published *A Statement of Accounting Principles*, prepared by Sanders, Hatfield, and Moore. As accounting practices are based upon the ethics and opinions of reputable accountants, the book is appropriate and opportune that a committee composed of eminent accountants and lawyers should be appointed to formulate a code of accounting principles which would be useful in the clarification and improvement of corporate accounting and of financial reports issued to the public.

◆

"The Jacquard Industry"

The Jacquard Industry is an 88-page well-illustrated booklet written by Herbert S. Swan, industrial consultant, and published by the Industrial Commission of Paterson, N. J., giving an economic survey of fundamental factors in the local industry at Paterson. The local industry is described, and such factors as mechanical equipment, labor, wages and labor policies, production, marketing, and improvement of competitive conditions are adequately described. Paterson has 51 Jacquard mills, the smallest having 8 looms and the largest 240 looms. The looms in this city represent 54.1 per cent of those in the neckwear industry, 15.2 per cent of those in tapestry, drapery, and upholstery, and 13.2 per cent of those looms in the dress industry. The survey, from which the booklet was written, was made to study the problems of the Jacquard industry in order that the local industry might be placed on a better competitive plane and cemented more solidly into the industrial structure of the city.

◆

Talcott News

At the annual meeting of James Talcott, Inc., textile and general factors, held February 16 in New York City, Amos H. C. Brown, president of James Talcott, Boston, Inc., and Ludwig K. Moorehead, assistant vice-president of James Talcott, Inc., were elected directors of the company. Marshall P. Blankarn and Emanuel P. Lewis were promoted to vice-presidents.

◆

Whitman Heads American Hosiery Company

Roger W. Whitman, formerly vice-president in charge of plant operations, has been elected president of the American Hosiery Company, succeeding S. Chase Coale, who is now chairman of the board of directors. Mr. Whitman has been with the company for the past 16 years.

◆

Glace with Specialty Products

Kenneth W. Glace is now associated with the Specialty Products Company, Inc., Jersey City, N. J., as representative in the southern territory. Mr. Glace was formerly with R. K. Laros & Company.

◆

Acme Transfers Purchasing Dept.

Acme Steel Company, Chicago, Ill., is moving the entire purchasing department of the company from the general offices at 2840 Archer Ave., to the company's Riverdale Works, located about 15 miles south of Chicago's loop. With H. L. Brueggemann in charge; this department will be located in the new million-dollar addition recently completed.

◆

Sanforized Yardage Shows Huge Gain

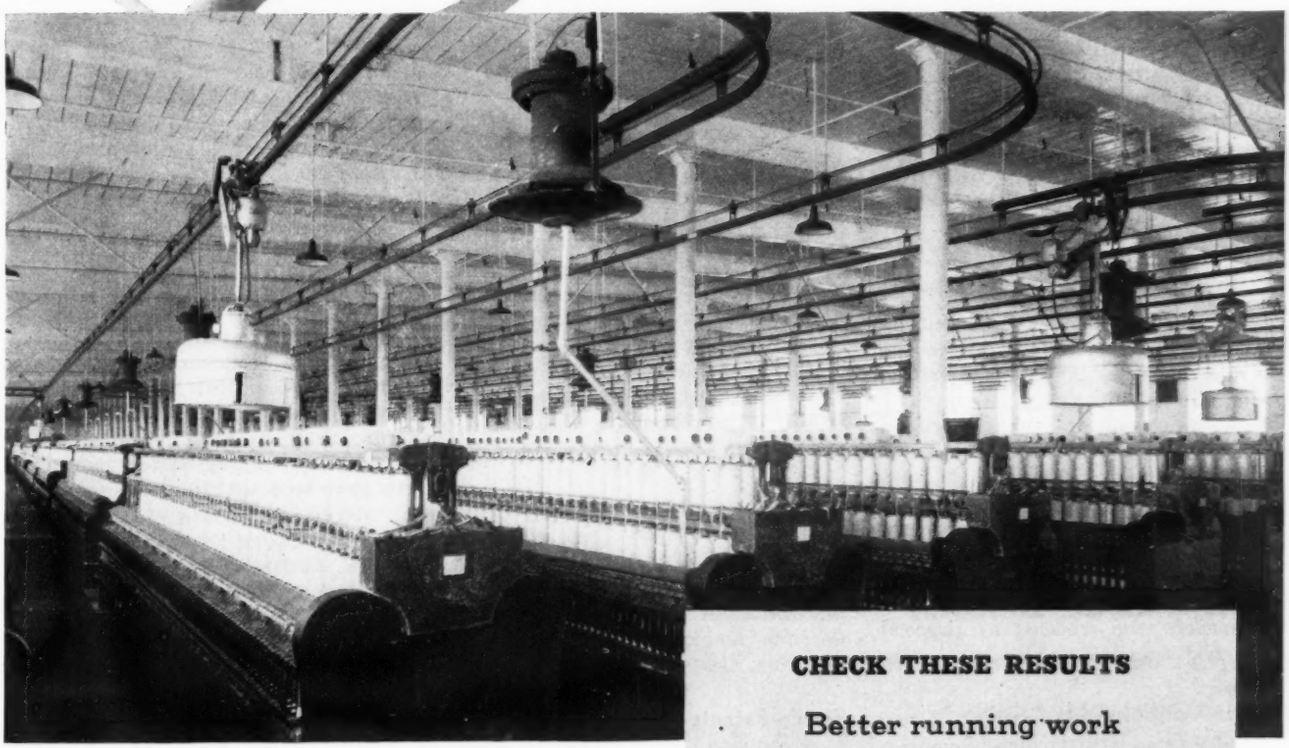
According to the Bureau of Industrial Service, Inc., 285 Madison Ave., New York City, Sanforized yardage has gained 1700 per cent in the last 6 years. The shrinking process is now used by 63 mills producing 60 per cent of the U. S. cotton goods with an output value of one hundred million dollars. 37 of the 63 mills are located in the South, with others in the North and Middle West. Approximately 95 per cent of the cotton sport slack goods have Sanforizing specifications and more than 75 per cent of the annual total overall and work clothing production contains the same specifications.

CLEANS WITH A SWIRLING COLUMN OF AIR

ACTUALLY a controlled cyclone with high velocity currents swirling around creel boards and guides removing lint before it can accumulate. Roving is protected against damage yet kept thoroughly clean. No lint is blown from one frame to another. Velocity can be carefully adjusted to meet changing conditions.

Such automatic cleaning relieves your spinners of most cleaning operations and enables them to produce more and better running yarn. Ends-down have been reduced by 53% in some mills, while cleaners over high speed warpers have eliminated 74% of the transfer stoppage.

Experienced textile engineers will explain how easily American MonoRail equipment can be installed. Write for copy of book describing all the advantages of automatic cleaning. Send card to The American MonoRail Company, 13106 Athens Ave., Cleveland, O.



CHECK THESE RESULTS

Better running work

Fewer gouts or bunches

Less ends-down

Spinners handle more sides

Lower cleaning costs

No lost production

Reduced machine stoppage

AMERICAN MONORAIL OVERHEAD CLEANERS

for Spinning, Winding, Spooling, Warping

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

Al Smith Now with Hubinger Company

A. G. ("Al") Smith has become associated with the textile division of The Hubinger Co., starch manufacturers, of Keokuk, Iowa. Al is well known to the mill men of the South, having for many years been located in Atlanta and Greenville, in the capacity of starch salesman. In his new connection, he will be making frequent trips throughout the southern territory. Chester M. Goodyear is the southeast sales representative of Hubinger, with headquarters in Atlanta.

◆

Moran Advertising Manager Commercial Factors Corporation

G. D. Moran has been appointed advertising manager of Commercial Factors Corporation, 2 Park Ave., New York City, succeeding Paul Messner. Formerly, Mr. Moran had been handling sales promotion work for Acme Fast Freight, Inc., New York. Mr. Messner is now associated with New Era Letter Company, New York, in a sales capacity.

◆

N. C. State Textile School Style Show April 21

The home economics departments of 11 North Carolina colleges for women have accepted the invitation to participate in the 1938 State College Style Show, which will be held on April 21. Fabrics designed and woven by the textile students at State College have already been distributed to the co-operating institutions. These fabrics will be made up into costumes depicting the latest styles by the young ladies as a part of their classroom work in home economics, then modeled by them at the style show.

◆

Union Special Adds Building

Union Special Machine Company, Chicago, Ill., for the seventh time in 57 years has increased the size of its factory devoted to the production of the Union Special line of industrial sewing machines, by constructing a new and modern building at Orleans and Kinzie Streets. It is of reinforced concrete structure faced with brick that could be increased in height conveniently at any time in the future. The engineering department and the development division occupies the entire second floor of the new building.

Plant Enlarged by SKF Industries

SKF Industries Incorporated, which added two new wings to their extensive plant at Front Street and Erie Avenue, Philadelphia, Penna., during 1937, have issued an attractive brochure effectively portraying these extensions. These new buildings are a part of a significant program of expansion on the part of the company, which is enlarging its facilities for production and increasing its service to industry.

◆

Allis-Chalmers News

Leon A. Watts has been appointed to succeed the late Samuel Moore as general superintendent of Allis-Chalmers Manufacturing Company's service and erecting department. Mr. Watts has been with the company since 1903 and during his many years of shop and field service has had experience in practically every line of equipment built by the company. In 1924 he was stationed in Atlanta, Ga., and in 1935 was transferred to Milwaukee as assistant to Mr. Moore, whom he now succeeds.

Mr. Watts

◆

Hughes Represents Parker Spool in the Carolinas

F. H. Hughes, P. O. Box 454, Greenville, S. C., has been appointed sales representative in North and South Carolina for Parker Spool & Bobbin Company, Lewiston, Me.

◆

Textile Patents

According to Paul B. Eaton, patent attorney, Charlotte, N. C., several textile patents have been awarded to mill men in the Carolinas recently. W. A. Kennedy, Charlotte, N. C., secured a patent on a counter which may be used as a pick counter for looms. William H. Bahan, Greenville, S. C., was awarded a patent on an improved shuttle box, permitting more rapid operation of the loom in which an eccentric cam is engaged by the side of the shuttle to exert a wedging action on the shuttle. W. P. McGahn, Greenville, S. C., secured a patent on a self-aligning sand roller bearing.

◆

"Brosco" now "Durabond"

"Durabond" has been registered in the United States and Canada as the new name for "Brosco" repellent finishes, products of Scholler Bros., Inc., and Scholler Bros., Ltd., Philadelphia, Pa., and St. Catharines, Ont., Canada. This change applies to the trade name of the compounds and not to the products themselves.

◆

Hamilton Resident Engineer for Foxboro

Robert V. Hamilton has been appointed resident sales engineer in charge of the Birmingham, Ala., district by The Foxboro Company, Foxboro, Mass., makers of precision industrial instruments and controllers. Mr. Hamilton, who will operate under supervision of the Atlanta office, has had practical industrial experience in the gas, steel, rayon, and chemical industries.

◆

Raiford Represents Kaumagraph

W. P. Raiford, P. O. Box 312, Durham, N. C., has been appointed sales representative for the southeastern district of Kaumagraph Company, New York, and will cover the Carolinas, Virginia, and West Virginia. He formerly was associated with the sales department of Golden Belt Manufacturing Company, Durham, N. C.

◆

Twenty-fifth Anniversary

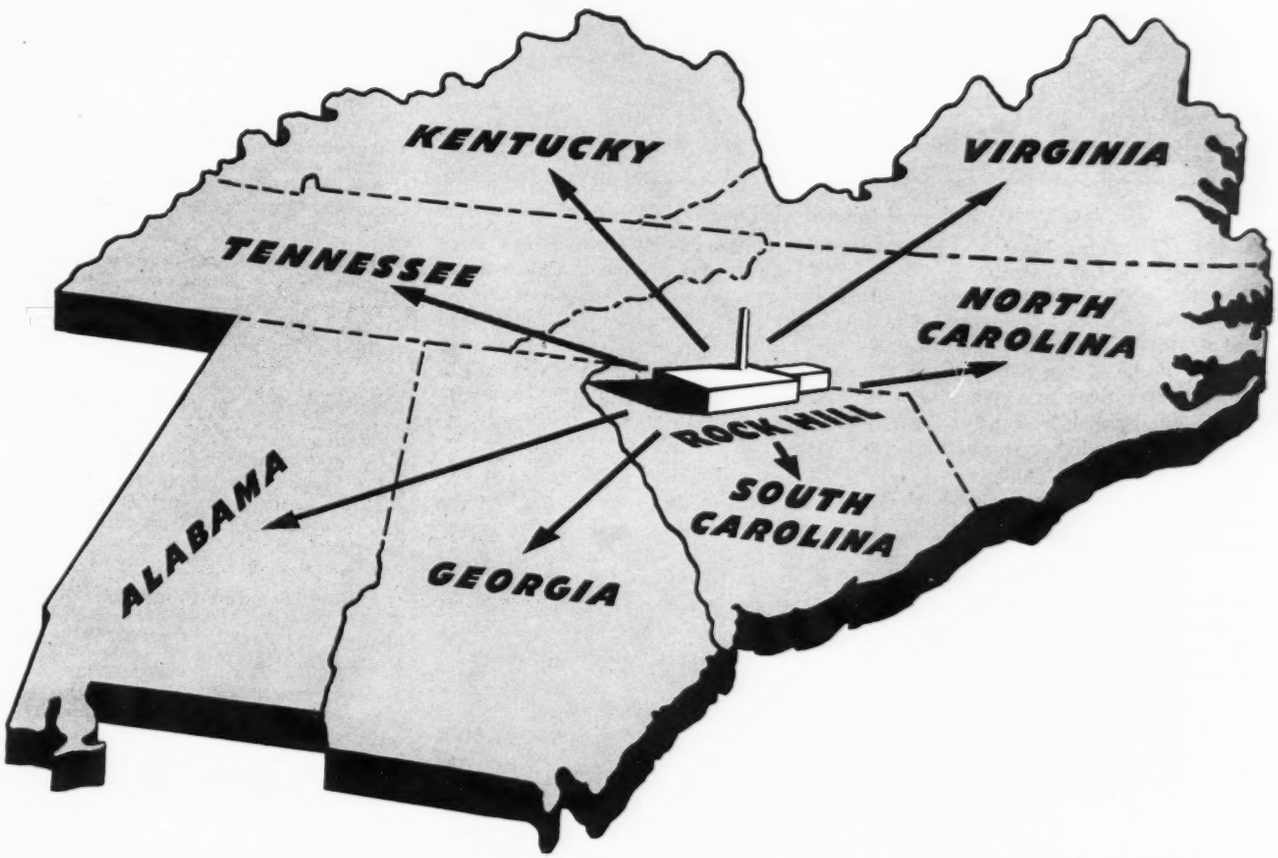
The 25th anniversary of the organization of the Mechanical Goods Division of the Goodyear Tire & Rubber Company, Akron, O., was celebrated during February with four outstanding veterans of the rubber industry, who have been with the division since its inception, as guests of honor at a dinner signalizing the occasion. They were W. M. "Pop" Metzler, 52 years in the rubber industry; Hal Campbell, 43 years; D. R. Burr, 43 years; and R. R. "Pop" Peebles, 31 years. All four joined Goodyear in 1913 and have played important parts in building the company's Mechanical Goods Division.

◆

Control of Liquids and Gases Reviewed in Crane Movie "Flow"

Crane Company, Chicago, Ill., has released a sound picture entitled "Flow", which shows how valves and fittings give man control over liquids and gases. Some of the views of modern manufacturing processes are packed with drama. The sequence of events shows how men co-operate to produce the vital units for use in power plants, textile mills, etc.

WE HAVE MOVED INTO YOUR MIDST



A Steadily increasing demand for WARCO chemical specialties in the southern textile industry has necessitated a closer contact between this company and southern mills. Consequently we have recently purchased a plant at Rock Hill, S. C., which we have completely equipped with the latest chemical manufacturing machinery and which is now ready to operate.

From this centrally located point we are prepared to serve our southern friends more promptly than ever before with the best in chemical quality that modern methods can produce.

Let us hear from you when in the market.

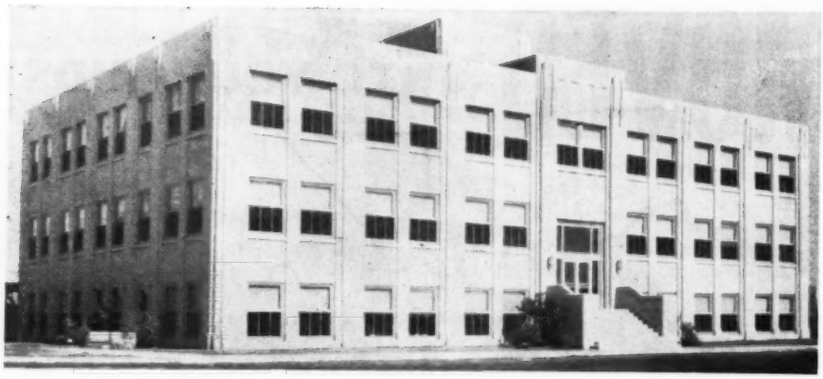
WARWICK CHEMICAL CO.

QUALITY PRODUCTS FOR THE TEXTILE INDUSTRY

FACTORIES AT WEST WARWICK, R. I. AND ROCK HILL, S. C.

N. Y. Office: 580 Fifth Ave.

Sales offices in: Bethlehem, Pa.; Paterson, N. J.; Griffin, Ga.; Burlington, N. C.



New Staley technical laboratory building . . .

Staley Completes New Technical Laboratory

A. E. Staley Manufacturing Company, Decatur, Ill., have opened a new technical laboratory in a building especially designed for the purpose. The building is a two-story structure with full height English basement; the construction is of reinforced concrete with hand-rubbed finish, and mastic tile flooring throughout and enameled tile walls. The frontage of the building is 122 feet with wings extending back 75 feet on each side. The total floor space is 21,500 square feet. The new laboratory is of the latest design for the company's purposes and is fully equipped with up-to-date instruments and processes. The equipment includes a pilot plant, in which ideas are given their final trial before going to the company's main manufacturing plant.

◆

Distributor for Valdura Paints

Matthews Morse Sales Company, Charlotte, N. C., has been appointed distributor for Valdura paint products, made by American Asphalt Paint Company, 43 E. Ohio St., Chicago, Ill.

◆

Glenn Heads Own Organization

John L. Glenn, who has been southern district sales manager for Peaslee-Gaulbert Paint & Varnish Company for 15 years, has formed a selling agency of his own with headquarters at Charlotte, N. C., and is representing nationally known manufacturers of products for the hardware and mill supply trade. He is covering the southeastern territory with which he has long been familiar.

◆

Dunwoody Treasurer—General Manager of H & B American Machine Co.

Kingsland Dunwoody has been appointed treasurer and general manager of the H & B American Machine Company, Pawtucket, R. I. A graduate of the Naval Academy, he entered industrial engineering work in a consulting capacity, coming in close contact with many industries, including textiles. A major phase of Mr. Dunwoody's work will be an improvement and development program of the company's numerous products. John W. Richardson, formerly acting treasurer, has been made vice-president, and is working in close association with Mr. Dunwoody and Edward L. Martin, president.

◆

Moore and Daniel with Stehedco

As announced in the January issue of COTTON, Steel Heddle Manufacturing Company, Philadelphia, Pa., which has acquired the Atlanta Harness & Reed Manufacturing Company, Atlanta, Ga., and will operate it as the Atlanta division of the company, will have as representatives I. G. Moore and Pete Daniel, who have long represented the Steel Heddle Manufacturing Company in the southwestern territory. They will now represent the new Atlanta division in the southwest territory. Messrs. Moore and Daniel will also service twine and mail eye harness, together with the large variety of loom harness equipment made by Stehedco.

◆

Bracken with Bunting Brass in Southeast

William C. Bracken has been appointed to the southeastern territory of the Bunting Brass & Bronze Company, and will have his headquarters at 296 Ivy St., N. E., Atlanta, Ga., where the company carries complete stocks of standardized bearings, automotive bearings, parts, electric motor bearings, bronze bars, and bearing metals.

◆

Lewis Vice-President Atwood

Arthur L. Lewis, general sales manager of The Atwood Machine Company, Stonington, Conn., has been elected vice-president. He will continue to be in charge of sales. Other officers of The Atwood Machine Company are Frank F. Dodge, chairman of the board and treasurer; Franklin R. Hoadley, president; N. Cary Hayward, secretary and assistant treasurer; and George E. Whitford, assistant secretary.

New Publications of Textile Interest . .

The Hinde & Dauch Paper Company, Sandusky, O., *Ideas*, a new portfolio showing photographs of before and after using shipping boxes of various companies, with implied suggestions.

Worthington Pump and Machinery Corporation, Harrison, N. J., 8-page bulletin, S-550-B4C, describing company's vertical, 4-cycle, type AG gas engines. Contains sectional drawings.

Haveg Corporation, Newark, Del., Bulletin B-1 treating specifically on cylindrical tanks, covers, and outlets. Gives complete technical data on standardized cylindrical tanks.

Scheuer & Company, 72 Leonard St., New York City, 1937 edition of *Comparative Textile Chart*, giving price history of 64x60, 38½-inch, 5.35 print cloth. Rayon fabric statistics show raw material prices and mill margins on several important staple constructions.

Abbott Machine Company, Wilton, N. H., *Winder Tensions*. Goes into history of winding tensions and describes various types.

New Departure, Bristol, Conn., bulletin showing how to interpret company's bearing numbers, gives interchangeability tables, alphabetical nomenclature listing by letter.

Fashion Worth News, 401 Broadway, New York City, portfolio giving reproduction of complete assortment of tags and labels in use on garments to identify specification of complete shrinkage, chart of shrinkage expectancy on 8 major types of cotton fabrics.

United States Rubber Products, Inc., 1790 Broadway, New York City, *U. S. Royal Cords & Cables*, manual designed to provide electrical engineers, contractors, and purchasing agents with wire and cable data and specifications.

Rohm & Haas Company, Inc., 222 West Washington Square, Philadelphia, Pa., *Triton W-30*, informative booklet on wetting agents and wetting processes in general. Information collected through several years of research in company's laboratories.

S. Blickman, Inc., Weehawken, N. J., bulletin devoted to the textile industry with particular emphasis on dyeing, outlining company's stainless steel equipment.

General Electric Vapor Lamp Company, Hoboken, N. J., *Mercury Light for Better Sight*, 12-page booklet describing the new combination Cooper

Hewitt-incandescent lamps and their uses in industry.

National Oil Products Company, Harrison, N. J., *NOPCO Softeners and Wax Finishes,* giving recommendations for softeners and wax finishes on the various fabrics.

Packless Metal Products Corporation, Long Island City, N. Y., Bulletin 100, a convenient new engineering data file containing descriptive matter and specification data sheets covering seamless flexible metal hose, detachable self-sealing couplings, vibration absorbers for pipe and copper tube lines, combination tube and hose couplings, and flex-control self-draining hose.

Standard Pressed Steel Company, Jenkintown, Pa., special folder on hosiery mill equipment, including bobbin trucks, hosiery boxes, pairing and matching tables, steel chairs, etc.

The American Pulley Company, Philadelphia, Pa., Catalog MB-38 descriptive of the construction and application of the company's tension control motor base. Includes engineering data on the performance of drives with and without the tension control motor base.

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., brochure written for the non-technical man, describes and illustrates the requirements which must be met in selecting a motor. Section of publication devoted to maintenance.

Hyatt Bearings Division, General Motors Corporation, Newark, N. J., Bulletin T-M, a 32-page booklet about roller bearings in textile machinery. Shows application of bearings on looms, preparatory equipment, finishing machinery, and other mill equipment. Profusely illustrated.

Fairbanks, Morse & Company, 900 S. Wabash Ave., Chicago, Ill., Bulletin 2260, descriptive of direct-current motors, and sizes available. Includes construction details.

Johnson Bronze Company, New Castle, Pa., Catalog 380, descriptive of general line of bearings, bushings, and bar bronze. Special sections included on oil grooving, flanged bearings and bushings, gives decimal equivalent chart, and listing of company's sales offices and warehouses.

Rayon Yarn Producers Group, 51 Madison Ave., New York City, *Rayons at Retail,* a 15-page booklet giving uses of rayon, advantages of its use by consumers, major selling points, departments in stores where rayon may be found, trade names, list of rayon producers, table showing 1937 U. S. consumption of textile fibers, and comparative table of consumption of rayon and silk yarns for 1937.

University System of Georgia, Georgia School of Technology, Atlanta, *Studies in the Cotton Drawing Process* (25 cents), by B. B. Peacock, effect of roll speed on tensile strength of spun yarns; gives procedure of tests and conclusions.

The Cotton-Textile Institute, Inc., 320 Broadway, New York City, *All American Selections,* swatch book showing the new ideas in cotton styling in unusually varied expression: serves as 1938 spring and summer swatch book.

The Bristol Company, Waterbury, Conn., Bulletin 503, giving the special features of the company's new re-set free-vane controller that provides point control.

Goulds Pumps, Inc., Seneca, N. Y., Bulletin 210, covering new line of single stage, ball bearing centrifugal pumps, and giving specifications.

American Mutual Liability Insurance Company, *Picker Injuries Are Textile's Worst,* a reprinted article from *American Mutual Magazine,* giving percentages of accidents and causes in the picker room; sets forth necessary precautions to be observed.

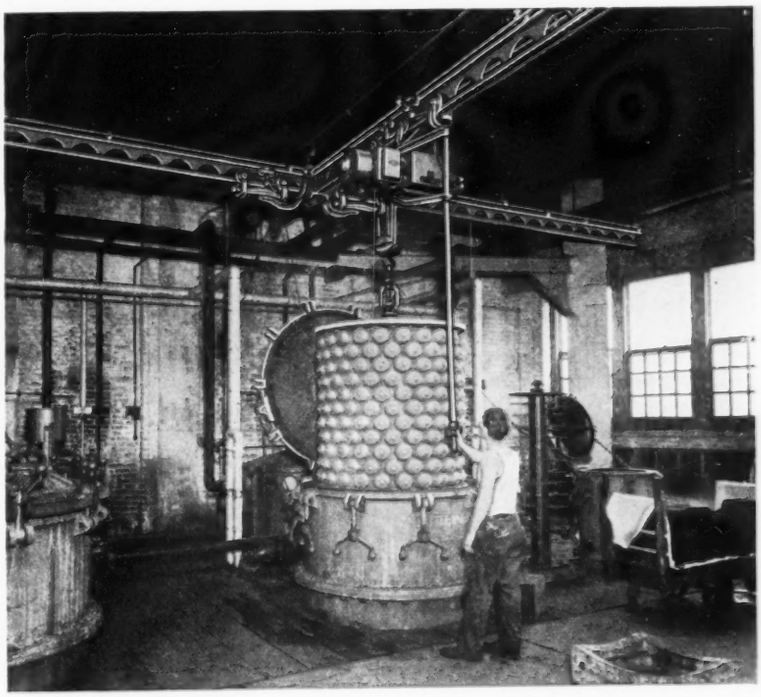
Mathews Conveyer Company, Ellwood City, Pa., *Natural Laws Applied to Production,* a cleverly written essay showing how modern industrial organization is based on the principle of continuous flow.

American Society for Testing Materials, 260 S. Broad St., Philadelphia, Pa., *Index to A.S.T.M. Standards and Tentative Standards,* gives information on all of the 823 standards as of January 1, 1938.

CLEVELAND TRAMRAIL

MATERIALS HANDLING EQUIPMENT

● In the Textile Industry Cleveland Tramrail has assisted many progressive manufacturers to Modernize their plants; to produce better goods at a profit.



● This unit of modern package dyeing equipment includes a Cleveland Tramrail hand propelled crane and carrier with Motor operated hoist. The control of the crane and carrier is in the hand of the operator, a push or pull or the rigid arm is sufficient; a pressure of the thumb controls the hoist.

Consult your phone directory under Cleveland Tramrail.

CLEVELAND TRAMRAIL

Division of

THE CLEVELAND CRANE & ENGINEERING CO.

1175 Depot St.

WICKLIFFE, OHIO

PERSONAL NOTES
about Men You Know

D. W. ANDERSON, who has been president of Pacolet (S. C.) Manufacturing Company for the past five years, has been made president of Judson Mills, Greenville, S. C., succeeding G. H. MILLIKEN, resigned.

B. S. ASKEW, formerly with Macon (Ga.) Textiles, Inc., has been made superintendent of the Bibb Manufacturing Company's plant, Taylor Mill, located near Reynolds, Ga., succeeding RUFUS SMITH, who resigned to enter business in Macon. LEON A. GRAYBILL, chief technologist for the company, has been transferred from Macon, Ga., to Bibb City, where he is in charge of tire fabric production and quality. H. W. PITTMAN has been named as assistant to W. D. ANDERSON, president of the Bibb Manufacturing Company. Mr. Pittman, formerly personnel director, is succeeded by Miss A. M. DAUGHTRY.

JAMES W. MCQUISTON, president and secretary of Waltham (Mass.) Bleachery and Dye Works, Inc., has been elected president of the Waltham chamber of commerce.

OTTO A. BELGER is no longer affiliated with the H & B American Machine Company, Pawtucket, R. I.

FRED D. TAYLOR has been transferred from the head office of Barber-Colman Company, Rockford, Ill., to become manager of the Framingham (Mass.) office, succeeding the late W. B. ANDERSON. L. M. HOWELL has been transferred from the company's Greenville office to the main office at Rockford.

JULIAN M. LONGLEY, assistant superintendent, Langdale (Ala.) Mill Division, West Point Manufacturing Company, has become resident agent of the American Thread Company, Dalton, Ga., succeeding F. LEE GAVITT. Mr. Longley is succeeded at Langdale by B. W. Whorton, formerly assistant superintendent of the Dixie Cotton Mills, LaGrange, Ga.

CARLETON E. BAULDRY has become general superintendent of the cotton and twisting mill division of the Clark Thread Mills of New Jersey.

F. K. RUPPRECHT has resigned as president of Consolidated Textile Corporation and Consolidated Selling Company. He has not made known his plans; his successor has not been named.

F. A. SHERRIL has been elected president of the Statesville (N. C.) Cotton Mill, succeeding the late WILLIAM WALLACE. W. C. SYKES was appointed superintendent of the mill.

J. BEN COOPER has become vice-president in charge of production at the Diamond Full-Fashioned Hosiery Company, High Point, N. C.

JOSEPH A. MARREN has been made general manager of Special Fabrics Company, a division of Sayles Finishing Plants, Inc., Saylesville, R. I., succeeding the late EDWARD C. ALLEN.

EDWARD MCGUCKIN has been made general manager of Raritan (N. J.) Mills, Inc.

H. E. BISHOP, formerly executive secretary of the Throwsters Research Institute, is now with the Berkeley Products, Inc., New York City, as vice-president in charge of sales.

B. P. BARNES has been made superintendent of mercerizing at the Dixie Mercerizing Company, Chattanooga, Tenn., succeeding PETER F. O'NEILL, resigned. W. N. THOMAS is superintendent of spinning.

J. L. LOFTIS has been transferred from overseer of weaving at the Brandon Mills, Woodruff, S. C., to overseer of weaving at the Brandon Mills, Greenville, S. C. Mr. Loftis is succeeded at Woodruff by J. S. FOSTER.

C. C. FINCH is now president of the Anniston (Ala.) Yarn Mills Company.

CLAUDE D. GOTT, Chattanooga, Tenn., has been made sales representative for the American Enka Corporation and will cover Tennessee, Georgia, Alabama, Mississippi, and Louisiana.

JOHN R. HUSS, formerly of Textiles, Inc., Gastonia, N. C., has become sales representative for the N. Y. & N. J. Lubricant Company, and is now covering the territory formerly handled by FALLS L. THOMASON, who, as noted, is now southern agent for N. Y. & N. J. Lubricant Company, succeeding his father, the late L. W. THOMASON.

W. T. CHEATHAM has been made secretary of the Stevens Manufacturing Company, Burlington, N. C.

Obituary

STACY D. ARROWOOD, 52, for many years treasurer of Cannon Mills, passed away at his home in Charlotte, N. C., February 13.

T. FRANK GOODSELL, president and treasurer of Goodsell Roll Covering Company, Manchester, N. H., passed away February 13. For many years prior to its liquidation, he was superintendent of the roll covering department of Amoskeag Manufacturing Company.

FRED H. ROBINSON, 61, cotton mill executive of Dallas, N. C., passed away at his home about the middle of February, following a lingering illness of a year.

CLINTON PHELPS, president and general manager of the Sherman (Tex.) Manufacturing Company, passed away February 5 after three years of declining health.

G. B. HOWARD, textile executive of Spindale, N. C., passed away the middle of February.

F. H. METCALF, president, Farr Alpaca Company, Holyoke, Mass., passed away during January.

W. G. NIGHTINGALE, president and director of the Nightingale-Morse Mills, Inc., Providence and Putnam, Conn., passed away during January.

HAROLD EDGEWORTH, division superintendent of the United States Finishing Company, passed away in Providence, R. I., in January at the age of 55.

WILLIAM P. WOOD, at one time superintendent of the Royal Weaving Company, Pawtucket, R. I., and later of the Manville-Jenckes Company, passed away at the age of 73. He had retired in 1926.

C. O. BRIDGER, vice-president of the Bladenboro (N. C.) Cotton Mills, passed away recently in New York City following an operation.

A. B. SUMMEY, 64, overseer of spinning, Eno Cotton Mill, Hillboro, N. C., passed away January 18 in Durham, North Carolina.

LOUIS HIRSCH, president and founder of Louis Hirsch Textile Machines, Inc., 47 West 34th St., New York City, passed away on Saturday, February 12, in his 66th year.

OBSOLESCENCE

IS NOT DETERMINED BY THE LENGTH OF TIME MACHINERY HAS BEEN IN OPERATION

DURING 1937

thirty-eight mills in 8 states and 5 foreign countries replaced obsolete equipment with Barber-Colman Spoolers and Warpers.

SIX OF THESE

mills, or about 16%, found it profitable to discard other types of improved winding equipment, *some of which had been in use only 3 years.*

THE LOWEST

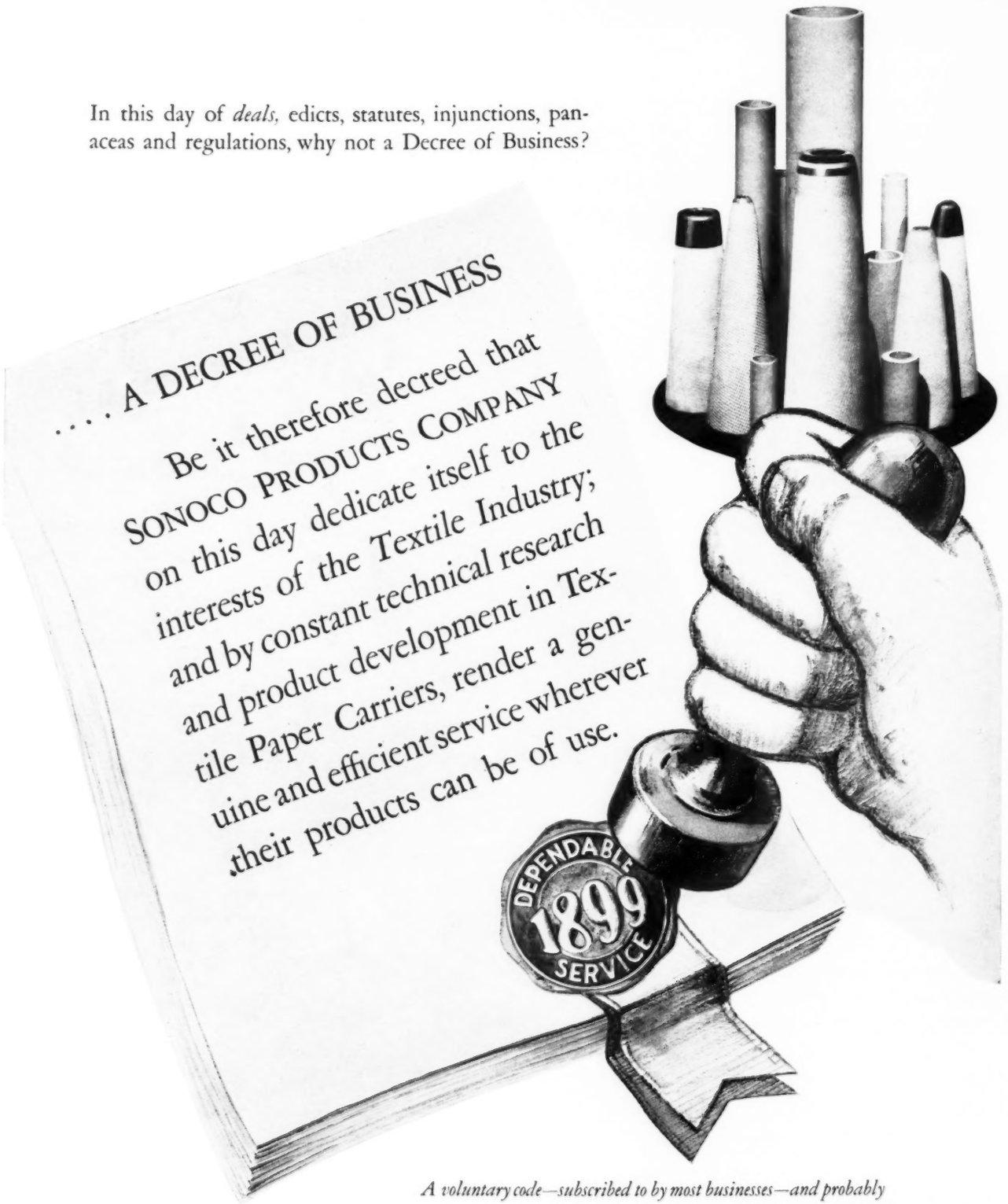
spooling and warping cost can only be obtained by using

THE BARBER-COLMAN SYSTEM of SPOOLING and WARPING

BARBER-COLMAN COMPANY

GREENVILLE, S. C., U. S. A.
FRAMINGHAM, MASS., U. S. A.
ROCKFORD, ILLINOIS U. S. A.
MUNICH, GERMANY
MANCHESTER, ENGLAND

In this day of *deals,* edicts, statutes, injunctions, panaceas and regulations, why not a Decree of Business?

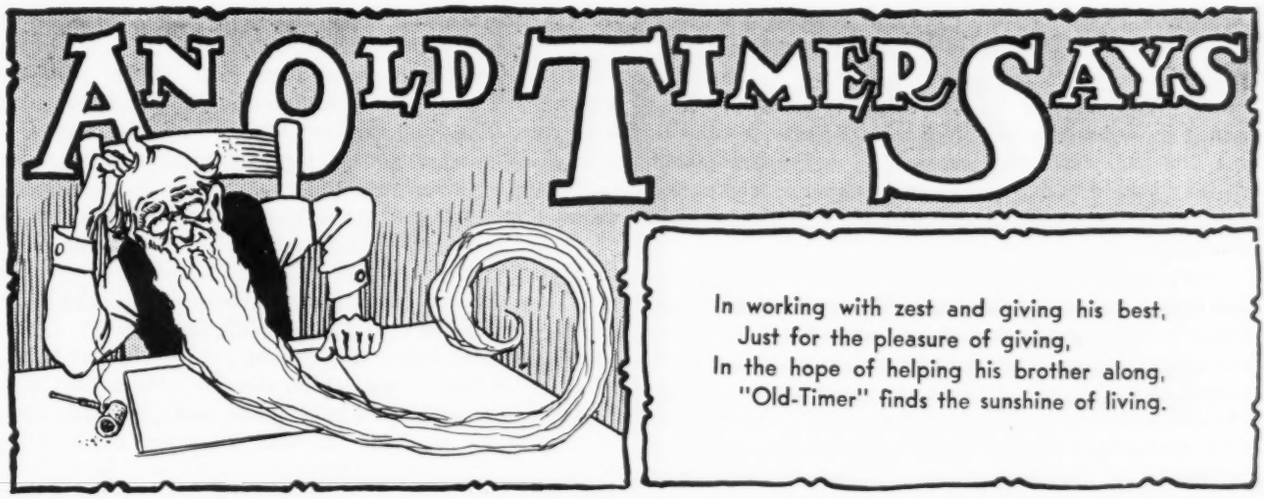

. . . . A DECREE OF BUSINESS
Be it therefore decreed that SONOCO PRODUCTS COMPANY on this day dedicate itself to the interests of the Textile Industry; and by constant technical research and product development in Textile Paper Carriers, render a genuine and efficient service wherever their products can be of use.
DEPENDABLE
1899
SERVICE

A voluntary code—subscribed to by most businesses—and probably inaugurated when they first started—as did SONOCO *in 1899*

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. HARTSVILLE S. C. MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

"The Pleasure of Running a Section" (Part Three)

(We now resume this serial on "The Pleasure of Running a Section", with this, the third and final installment. The first installment appeared in the November 1937 issue, and the second part appeared in the January issue. We were interrupted by Old-Timer to present, in the December issue, an article on advertising, and, in the February issue, to present his report on the response to that article. This three-part article gives a great deal of practical and inspirational information . . .

I am quite confident that even a casual study by overseers and superintendents will reveal that in the large majority of cases the operatives who are saving a part of their wages are most invariably the best operatives; their production records are generally higher and almost without exception their work is of a higher quality and their machines are kept in better shape.

This statement is made after many years of actual study and after many actual experiments conducted in various ways. Therefore, OLD-TIMER urges every overseer and superintendent to make a study among his own operatives and also to try all the schemes he possibly can think of to encourage his operatives to save part of their earnings and then watch the results. Of course it will take, sometimes, several years to be able to see definite results, that is, results which are so outstanding that they are apparent to everyone, but meantime, the results have *been* there in numerous ways, and you and your firm have been reaping the benefits from them. Such operatives, that is, operatives who are saving a part of their earnings, not only do better work, but they accept any changes that the management makes with a spirit of co-operation; they are better citizens; they are simply so far out of a class with the average operative that it is quite a surprise that more overseers and superintendents have not realized this fact and done more about it than they have.

It is such an important item of successful management that I believe every overseer and superintendent should discuss it with his president and seek his aid in furthering or promoting plans to get the largest possible number of operatives interested. Numerous little experiences flash through my mind as I write this, and although space will not permit of all the details leading up to the many schemes we have tried, we can give you an insight into the results and a few instances in order to make clear the point we are trying to impress on you.

Between 1910 and 1913—I do not recall the exact date—we began a rather systematic campaign of advice and encouragement among the operatives in regard to the benefits they would derive from saving a part of their earnings. After doing all we could think of along these lines, we arranged to have an ice cream lawn party out in front of the mill. The electrician wired and lighted the lawn; we had committees of men and committees of women to solicit milk, eggs, cakes, sugar and all the other things we needed for making the cream; the dishes for serving it, etc. We had the local quartet arrange a special program, and although we did not have a band, some of the boys got an old bass drum and a kettle drum from goodness knows where. I'll explain what the drums were for a little later; and, as this scheme or plan may sound a little amateurish to you young overseers and superintendents, I will explain that in those days there was no way to get any money or even encouragement, in some cases, from the management for doing such things, and we overseers and superintendents had to do what we did do simply by main strength and awkwardness, as the fellow says, and I guess most of it was awkwardness.

Anyway, we had the party. The local minister made quite a nice talk and although OLD-TIMER never could make much of a speech, when he got warmed up talking to operatives about something he thought would result in a little more production, boy! he sure could go to town. So, after we were all full of ice cream and cake, OLD-TIMER told them what it was all about. We proposed to form a dollar savings club and said we wanted every operative who would, to

form in line; we were going to march about a mile up town to the bank where the bank president, his cashier and about a dozen others were waiting to take the name of every person who would start to saving their money by depositing one dollar. If anyone wanted to join the club and did not have the dollar that night all they had to do was write their name on a piece of paper and we would accept that as a dollar deposit until pay day.

At a signal from OLD-TIMER the fellows let loose on that bass drum and we started our march to town. Yeah, we had lots of fun, but I only wish I could tell you all the things OLD-TIMER learned from that night's experience and also tell you the names of men who are prominent today in mill circles who marched behind that old drum that night. One of the overseers in that same mill today was a young boy then who deposited his name on a piece of paper that night because he did not have the dollar. A few years later two section men bought little farms; one section man began building inexpensive houses to rent and the last I heard of him they told me he had enough rental money coming in to live on comfortably. But we began this discourse talking about running a section, and I guess you are saying what in heck does all this have to do with running a section. Brother, I'm telling you that it has more to do with it than the average man can realize. A section man who is saving his money will save supplies for his company; he is more interested in pushing for production; he is more interested in everything which goes toward making a better operative and a more loyal and respected citizen; his whole attitude changes; he seems to enjoy his work more and he is happier than he ever was in his life.

And don't forget, Mr. Overseer and Mr. Superintendent, all of this reasoning applies to *you* just as much as it applies to Mr. Section Man and all the operatives.

About a year after starting our dollar savings club we started a bonus system which enabled an operative to make a little more money if he went after it hard enough. Gosh! you should have seen those dollar savings club members eat it up.

Well, it would take a book to tell you anything like all the experiences which come to my mind as I think back to those days, and I could also surprise you by giving the names of men who are prominent, the mill men today who got the incentive to do something, to be somebody by just some such seemingly unimportant little plan as the dollar savings club described in the foregoing.

One other probably strange result which shows up by encouraging operatives to save their money is the appreciation they show toward the man or men who persuaded them to start. Operatives who made the start and have kept it up until they have built up a substantial bank account and have finally bought a little farm, a home, or something, have formed, in the meantime, a loyal friendship for the man or men who caused them to start. And, brother, I know from actual personal experience, that those operatives will stick to that one through thick and thin. Even when it becomes necessary to cut wages you will hear of them taking his side in conversation with other operatives who are raising a howl.

I'll never forget a weaver—that is, he was a weaver when he started saving his money; he was a loom fixer when the incident which I am about to relate occurred—I was making my inspection on his section one December just before Christmas. He joined me as I was going along in the weaver's alley looking over his looms, when a conversation something like this occurred:

"How are you getting along these days, John? I heard you bought a new automobile last week."

"I sure did, boss, and I want you to look at this. (It was his bank book, which showed quite a nice little balance after he had paid for his car). I made the last payment in June on that 30 acres of land I bought, and now that I have a little piece of land that I know I can make a living on, I thought I could afford to buy a car."

"Sure, John, you remember I explained to you that a man should not try to save so much out of his earnings (he had two girls, one in the weave room and one in the spinning room) that he would be in too much of a strain."

"Well, I did strain pretty hard until I got that land paid for and I thought a long time before I bought the car, but the girls have been mighty good and I thought we could now begin to have a little pleasure and still keep on saving some."

"Well, John, I'm awfully proud of you; you certainly have done well, and I hope and believe you will keep it up—" (We were at the end of the alley by this time and I started over to the next section.)

"Oh, say, Boss, would you get mad if I was to give you something?"

"No, John, it would hardly seem reasonable for anyone to get mad when being given something."

"O. K., here's a little Christmas present for you." (He handed me a little box about 1½ inches square, which I put in my pocket.)

"Thanks, a lot, John; hope you and your family have a fine Christmas."

"When I got to the office I opened the little black box, and there was a five-dollar gold piece. Gosh, fellows, you can imagine how I felt. I did not want to accept his hard-earned money and I did not want to hurt his feelings by refusing. Anyway I simply had to go back to him and explain that I did not feel like taking such a generous gift, etc., etc.

"Hell," he said, "I would never have had it if it hadn't been for you; I never would have had my farm; I never would have had a lot of things," etc., etc., etc.

This incident occurred about eleven years after we started the Dollar Savings Club, and the last I heard of John he was still at that mill. Both girls married, but old John had his little farm paid for and was not worrying.

This, Mr. Overseer and Mr. Superintendent, is not fiction, but it actually happened, and if any of you doubt it I can give you John's full name and address.

I do not wish to bore you in relating these experiences, but I am so confident that every overseer and superintendent would benefit by following these ideas

in his management that these, or other ideas you may originate, as a result of OLD-TIMER'S experiences, will certainly result in more production, which is the thing we are all striving for and at the same time result in more loyalty and, oh boy, the real honest-to-goodness pleasure a man gets out of doing a real service to his fellow beings—these are the kind of things which make life worth living. Such experiences prompted the little verse that appears at the top of the OLD-TIMER page, the last line of which says: "OLD-TIMER finds the sunshine of living."

As the experience just related about John was one in which there was not much money involved, I want to tell you of one more, which I think is most outstanding, and I shall try to be as brief as possible:

Ed had been doing odd jobs around the mill for several years; he had never amounted to much as an operative; his wife, however, was a good operative. When mills began to put in the so-called dope stands Ed got a job running one of the wagons, and his wife got a job at the stand.

One day I said, "Ed, are you saving any money?"

"No," he said, "it takes every cent we can make to get along."

A few days later I sat down with Ed and we figured out what he and his wife should live on, and, subtracting that from his wages, showed what was left. He started a saving account; he got interested and began doing other things to boost his wages. I finally persuaded him to buy a negro house; it cost around $350.00, as well as I can remember. In a few years Ed owned enough negro houses to bring in about $40.00 a week. Then, to use a slang expression, he "went to town". He had proved himself such a good man on the dope wagon that he was put in charge of the stand, where he made good money in his management of it. This gives you some idea of his background; therefore, I'll cut the story short by telling you that I met Ed on the street of a nearby town last summer and he told me he had made $8,000.00 on one real estate deal that year. Ed is easily worth $50,000.00 in income-bearing real estate. Now think back, fellows, to the start of Ed's experience; he would still be striving along on his meager wages today if he had not been persuaded to make a start at saving a part of his earnings.

Can you begin to see, fellows, the pleasure OLD-TIMER got out of running a section and by carrying the experience of running a section right along in his work as overseer, superintendent and manager, using that foundation as a yardstick which influenced his methods of management or his relations with employees, I suppose would be the better way to say it? For example, back in the days when OLD-TIMER ran a section, there was a surplus of help, and when a set of looms came open there were usually several applications by spare weavers for that set of looms. One day Mr. Tom Smith, the assistant overseer, was talking to OLD-TIMER about his work and asked him why so many weavers wanted looms on his section, not spare weavers, but weavers who already had sets of looms in other parts of the mill but would make application when they learned a weaver on his section had put in a "notice".

"That's news to me, Mr. Smith," OLD-TIMER replied, "and I am unable to explain it to you."

"Well, I've had so many applications for looms on your section that I'd like to know the reason; in fact, one weaver offered me $10.00 when I told him there were several applications ahead of his."

Of course there is no need to attempt an explanation of this to our readers, for any mill man will know why weavers wanted a set of looms on a section where the looms were fixed in such a way that they would *stay* fixed longer, resulting in less stops, less loss of production, etc. But the point I am trying to bring out to overseers and superintendents is that such experiences as these, while running a section, gave OLD-TIMER the foundation upon which he based all of his management in the years following, as overseer, superintendent and manager of some pretty large cotton mills. In fact, to the best of his knowledge, OLD-TIMER had the good fortune of being superintendent of the first 100,000 spindle mill built in the South, when he was old enough to have voted only a few times.

OLD-TIMER has always claimed that any overseer or superintendent or department head in any line of work, who had the ability to anticipate his work, would be the man who would always be outstanding among his competitors, and that is why he has given you this explanation, to show how he *anticipated* his work while running a section, and also to give you an actual experience of a protege of his who followed his instructions in running a section, to prove to you, beyond any doubt, that the idea is not just a theory, but that it has been proven to be sound and workable by the actual, and successful, results it has given other men, as well as himself.

Worth is largely determined by value to others.

Everything worthwhile saying has not already been said.

A card grinder's responsibility does not cease when that card is properly set.

Correction in Article on "Uneven Yarn"

An arithmetical error which crept into the otherwise accurate article, "The Story of Uneven Yarn", by Fay H. Martin, in the January issue of COTTON has caused a number of readers who have called it to our attention some concern.

On page 53 appeared the statement, "The high break was 122 pounds and the low break was 94 pounds, a variation of 27.08 per cent." The percentage figure (27.08) is obviously in error; the correct figure should be 29.78 per cent, as may be arrived at by subtracting 94 from 122 and dividing the remainder by 94.

Following through, the figure (27.08) as transferred to the graph "Yarn Size and Break Report" on page 52, should have been 29.78. Otherwise, the article is correct.

This mistake in calculation was not serious, as it is obvious by making the original arithmetical calculation.—THE EDITORS.

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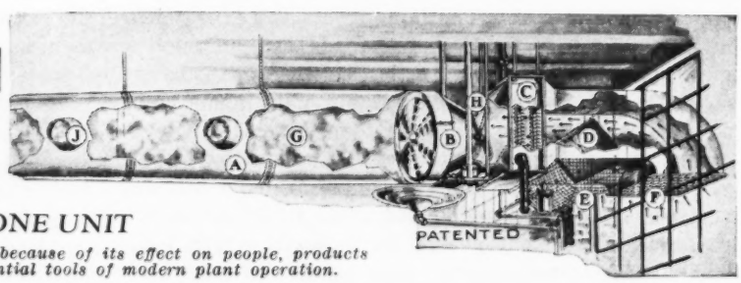

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Cleaning Card Flats

EDITOR COTTON:

We are having great difficulty in keeping our card flats clean. If the readers of COTTON have had this same trouble and will pass their experiences along to me in overcoming this difficulty, I will appreciate it. At times we are compelled to use a wire stripping brush at the back of the card to remove the dirt, but this method is injurious to the wire in the flats.

CONTRIBUTOR NO. 6787

"Wash" on Research Again

In which he still asks, "Does it pay to have a research department?" . . . . . .

EDITOR COTTON:

In the September 1937 issue of COTTON, page 105, I find an article entitled, "Answers 'WASH' on Research Department" and written by "CONTRIBUTOR NO. 4022." This is an excellent article, and its tone gives every indication that the writer is a gentleman.

In the second paragraph he states, "'WASH' seems to always be in a controversy with someone, and sometimes I wonder if he does not like to get up an argument, many times, just to get other contributors to bring out all of the points of a discussion so that some good may come of it, rather than just for the sake of an argument." "CONTRIBUTOR NO. 4022" is dead right. but when he states, in the next paragraph, "I have him pictured as a practical man of the old school who is willing to accept new ideas only after he is convinced by hard facts rather than by theory that the new ways are better," that is something else.

Is it not a fact that there are many new so-called long draft systems which are the latest in drafting? Surely they are not all equal; one of them must be the best way; which one?

I can point out a mill in my own state that wasted a lot of money with the draft rod system, to no avail, and which system had to be discarded. Remember the new way that was adopted years ago for making a long bobbin in the spinning room, and longer shuttles in the looms? Was that better than the old way? A fortune was wasted in that idea, and at last it had to be discarded. At that time I employed my pen in a fight against its adoption.

I could go on and on, and mention many new devices that were tried, at a great expense, only to be discarded later. Therefore, in most all of my articles I try to protect the manufacturers from errors made in the past, and, at the same time, give the younger readers of this department the best that there is in me. I am telling the boys now, for the first time, that I am fast approaching my 70th year—that I might seek praise and credit because of that? Of course not.

I hope that "CONTRIBUTOR NO. 4022" will admit that the well-managed mills that make money will spend money to make their mills better. One will find two conditions in mills that are not making money: one is neglect and the other is carrying deadheads on the payroll. The success of a cotton mill depends upon the attention paid to the proper drafting of the machines and to the stock in use. These are two of the most vital matters in the operation of any mill. Also, is the research department a paying proposition or is it composed of deadheads? That is the question.

As I understand it, the duties of a research department are to measure output, estimate production, and correct all defects, and they should be judged solely on this basis. In order to be qualified to take charge of a research department one's mind must be up-to-date, able to absorb new ideas; his eyes should not be closed to innovations for the sake of improvement and he should not be guided by yesterday's information rather than today's inspiration. One cannot expect to win modern battles with ancient weapons.

In the fourth paragraph of his article this contributor states, "And I am of the opinion that without research little progress will be made." At this point I think the contributor will admit that his pen slipped.

Prior to the year 1791 there was no manufacturing in America with the exception of that which was purely domestic and for domestic use, but, it appears from a report of the secretary of the American Treasury, drawn up in 1810, a cotton mill was erected in the State of Rhode Island. Since that time our country has experienced progress, the city of Fall River, Mass., taking the leading part. By the year 1911 Fall River had 104 cotton mills, built of brick and

granite, and containing approximately 4,000,000 spindles and employing 37,000 operatives, these operatives weaving nearly 20 miles of cotton cloth a day, including fine and coarse goods and ginghams, in addition, spinning yarn and thread. This is an investment exceeding $50,000,000, distributing $275,000 weekly in wages; all of this accomplishment without a research department.

Since the advent of efficiency engineers and research departments Fall River has found herself in an awful mess, and to picture Fall River at this time would make discouraging reading. "CONTRIBUTOR NO. 4022" must admit that the yarn and cloth made prior to the existence of the research department equaled the yarn and cloth of today.

Again, this contributor states, in the same paragraph, "It is my observation, in this connection, that the regular supervisory staff, the overseers, second hands and section men, will have little time to do research work even if they are qualified to do so." In other words, the overseer, second hand and section men are not supposed to use their experience and knowledge, but, instead, leave it all to the research department. Then he asks, "Suppose, for example, that it is necessary to check all of the front roll speeds in a large spinning room, you would be almost obliged to get an extra man to do this for you. Wouldn't a research department come in fine here?"

My answer is No! As superintendent I have charts for every department; every up-to-date mill has hank clocks. Now if the hank clock shows a poor production is the cause the ring spinner or the frame speed? Surely you need no research department to determine the cause. A hank clock is more efficient than those in charge of the research department.

In the fifth paragraph our contributor states, "Again, ask a weave room overseer how his room is running, and the chances are that he really does not know." Then, may I ask, what is he supposed to know? An up-to-date overseer of weaving will obtain an account sheet from the cloth room.

Let us assume that there are 2,000 looms in the mill; then you have 2,000 numbers on your sheet. Next, rule off the sheet in squares to equal the days of the month, and let us suppose that loom No. 301 is making thick and thin places and the report is on the first day of the month. You simply mark a "T" opposite loom No. 301, "T" being the symbol for that defect; for reed marks or scratch-ups you would use the symbols "R" and "S". The number of the loom is obtained from the cloth inspector. If on the 15th of the month you get the same report on that loom then it is up to the overseer to find out if the loom fixer is fit to run his section.

In order to find out whether the loom speeds are up to standard, the pay envelope and pick counter will tell the tale; and, again, you need no research department in this case.

I have a chart for supplies and all gears, etc.; nothing is given out or anything changed without first consulting the chart. Of course, in the weave room, an account is kept only of the looms making defective cloth and poor production. With a chart, you know at a glance the number of feet of belting you have on hand, and you know that the employees are not using expensive belting to tap their shoes, which is a common practice in many mills, and the use of a chart is so easy.

In his sixth paragraph "CONTRIBUTOR NO. 4022" states, "Can you tell whether the picks per inch are correct?" He need not worry about this; the buyer will let him know. And, let me add, that any overseer of weaving that is not able to produce any cloth with the correct number of picks should be fired. If the warp preparation is defective have the overseer of warping do research work at the back of every loom; in other words, have him walk through the weave room so he can see the poor work he is turning out, and if he is unable to remedy the trouble, fire him. And you need no research department to do that.

In the seventh paragraph the claim is made that all factors are considered in the research department. I think he will change his mind after reading this article.

In the eighth paragraph the contributor claims that the carder has no time to make tests. Then what in the world is the use of having a carder; what is he supposed to do? Please let us know.

We have defective cones running in our mills today where the total diameters vary to the amount of 5/100-inch. Has your research department discovered that?

What defects will the dwelling of the carriage cause, and can these defects be discovered by the research department? What will cause the layers to be closer together on the outside of a full bobbin than on an empty one?

At this writing many fly frames are running with the foregoing defects, and, of course, making defective work, and what are the research departments doing about it?

Look up your back issues of COTTON and you will find where a man in the research department discovered that the breaking strength of the warp increases with the addition of picks, up to a certain point, and then with the addition of only six picks, the breaking strength fell off 10 pounds. I ask "CONTRIBUTOR NO. 4022" if he believes such stuff.

Not long ago the Patent Office granted a patent for a bottom cone that takes care of all the varying conditions that exist during the winding of the roving on the bobbin. The foregoing proves that the bottom cones on all fly frames were all defective since the birth of the cotton industry. Was that discovered by any research department. Of course not; it was discovered by a great friend of the writer, and a great mill engineer and draftsman.

Now if anyone connected with a research department answers this article I hope that one will grade me on the following:

In all research departments the staff is composed of graduates from institutes of technology, colleges and textile schools. What do they know about cotton grading? It must be admitted that we might have a dozen samples of cotton that would grade Middling, no two of them having the same appearance.

It takes long experience and practice and a large number of comparisons to train the eye and hand to distinguish between the different spinning qualities of a cotton. Can such a staff judge the strength of the staple, evenness in the length and its freedom from unripe fibers? I don't think so. The uniformity in the length of the staple is important, for the reason that the machinery in all cotton mills must be set for a certain length of staple. If the setting on the picker is ¼-inch between the feed rolls and beater for 1-inch staple, what setting would there be for 1½-inch staple? Which of the two staples should receive the greater number of blows to the inch? Can you name a cotton mill that has more than one set of feed plates? Still, it must be admitted that one cannot run short and long staple with the same size nose plate. Does the research department take that into consideration?

If a lot of cotton contains long fibers these will be broken by the machinery which has been set for short fibers, and of course the amount of waste is increased. I imagine that when this occurs the staff has a consultation, and the weather or something like that is found to be to blame, and the man at the helm will stomach such a report and continue to receive what I term false reports.

I wish to ask any staff in charge of research work these questions: How is a single filament of cotton tested? What is the normal strength of the white fiber and at what number of grains should it break?

In closing, I wish to ask another question, which "CONTRIBUTOR No. 4022" will admit is a fair one:

Let us assume that the research department gives us a micrograph report of a spun yarn that is not close, compact or smooth. How can it determine whether the trouble is due to excessive drafts or tight tensions or humidity? If the research department is not a paying proposition no textile journal ever carried a greater mission than that of pointing out the fact to manufacturers who may contemplate installing one.

WASH (R. I.)

Eliminating Filling Bars

EDITOR COTTON:

We inspect our fabrics by the "through light" method and we are having much trouble in eliminating filling bars. These bars generally consist of one complete quill of filling, though sometimes two or three quills come together. Our filling numbers are 32s and 50s, made from 1 1/16-inch and 1 3/16-inch cotton, spun on regular draft frames (not long draft), conditioned with a chemical, and allowed to stand at least two and a half hours before being delivered to the weave room.

All processes through carding and spinning have been checked to no avail. The defect does not show on the looms but only on the "through light" inspection in the gray goods, and, of course, in the finished goods.

We shall appreciate any help the readers of COTTON may give us.

CONTRIBUTOR No. 6774

The Patrolling of Weaver to Make Perfect Cloth . . .

This man, who has one of the largest weave rooms in the country, gives a method for weavers to patrol their alleys. We know he gets results . . .

EDITOR COTTON:

In reply to the question asked by "CONTRIBUTOR No. 6607", on page 115 of the April issue of COTTON, "Does the weaver have to see all of his cloth as it is woven in order to make perfect cloth?" I should like to say that, first, no weaver ever makes perfect cloth, but he should patrol his alleys in order to make good cloth. To begin with, a weaver should have a starting point from which to patrol. If his looms are all in one alley, or in two alleys, he should patrol the backs. Generally, if the weaver on a multiple loom system walks the backs on one line, he should start up all of the looms in that alley as he goes back of them; when he comes to the second alley with the looms on either side, he should start patrolling on down to the end of the alley; then, patrol the backs of the opposite alley and start up the looms. Under no circumstances should the weaver leave the last alley of looms that he has already patrolled in order to start those that have stopped there. When he has finished this last alley he should cross back to the first to the opposite end where he starts patrolling the backs of the looms the same way in which he began, only he must go in the opposite direction. When he has finished the second patrol he is back at the place where he started.

The weaver must then patrol his weavers' alleys to inspect the cloth for any defects that may have come into the cloth from all of the main defects listed.

With reference to seconds, a great deal depends on the kind of warps a weaver has to run as to whether he makes a high or a low per cent of seconds. Too, it depends on the condition of the looms, whether they are in condition to weave good cloth. I would say that with a No. 1 warp and loom in good running condition, a weaver can make good cloth with as low as 2½ per cent of seconds on 80 x 80 running around 70 to 80 looms on 160 picks per minute. This would be a No. 1 weaver; other weavers, not so competent, would have to take less looms in order to be able to produce the same results.

At no time could a weaver see all of the cloth made by his looms, unless he would stand over it all of the time.

In conclusion, I should like to say that a patrol on a multiple loom system is a continuous patrol, never leaving one alley to go to another to start up looms, but, the warp and filling for looms have never been produced that will make perfect cloth continuously.

CONTRIBUTOR No. 6618

EDITOR COTTON:

Concerning the question asked by "CONTRIBUTOR No. 6607". A weaver should be able to see most of the cloth that is woven to make perfect cloth, and to make the cloth free from all defects, he should patrol

the alley about every 10 minutes. However, a weaver who has 40 looms, or more, cannot see all of the defects in the cloth; he cannot patrol the alley often enough unless he has the best of material and the looms are kept in good condition.

CONTRIBUTOR No. 6619

Old or New Card Top Flats

Which give the better results? Read this question it may set you thinking . . . . . .

EDITOR COTTON:

I heard a question debated between a couple of carders the other day, and I will pass it along to the readers of COTTON for them to express an opinion on it.

One of the men contended that old card top flats that have been worn down will put out less white cotton in the strips, get rid of more trash, and give a better card sliver than new card flats with long wire, the settings being the same.

The other fellow said it might *appear* that the old flats were doing the better work, but he did not believe that they actually were.

I would like to have some good carders answer this question.

CONTRIBUTOR No. 6772

Beats per Inch on Pickers

EDITOR COTTON:

Before the days of one-process picking, we used to hear a great deal of discussion at textile meetings, and read a lot in the magazines, on the subject of beats per inch. Recently we have seen and heard little on this point, and I would like to see some discussion on it in your "HOW OTHER MEN MANAGE" department, and wish some of your reader-writers would let us have their ideas.

It is entirely possible that the general adoption of single-process equipment, along with the natural results of further experience and practice, has changed some of our views, and I would like to see the subject thoroughly thrashed out. This could of course include a report on what a man used to do, what he is doing now, and why he changed, and the results he gets. Of course, every one should be specific and complete in giving his facts.

Our own set-up at present is as follows: We use Middling spots cotton, 1 1/32-inch for warp and 1-inch for filling. Our machines have two beaters; the first is a three-blade beater, and the size of the feed roll there is 2½ inches. The second or finisher beater is a Kirschner beater, and the feed roll there is 2⅞ inches in diameter. At present our blows per inch are: breaker, 23.98; finisher, 43.67.

I would be glad to have your readers comment on this practice, as well as giving their own methods with reasons. This of course should take in beater speeds, fan speeds, etc., etc.

CONTRIBUTOR No. 6791

Belt Question Again

EDITOR COTTON:

There has been much discussion concerning the question, "Which side of a leather belt shall be run next to the pulley?" and I should like to offer my opinion as I have had 35 years' experience running leather belts on cotton mill machinery.

I believe the smooth or grain side of the belt should be run next to the pulley for the following reasons:

1. The grain side of the belt presents the most friction and therefore the least slippage, and consequently less loss of power.

2. The center of strength in a belt is located one-third the distance through the belt from the flesh side and it is better to crimp the grain or weak side around the pulley than to strain it.

3. The stronger side of the belt receives the least wear when run in this manner.

Some authorities recommend running the flesh side of the belt next to the pulley, and while this is contrary to general practice, it gives good results in some cases.

CONTRIBUTOR No. 6781

Answers Questions on Yarn Variation

EDITOR COTTON:

The following answers are given as my opinion to the questions asked by "CONTRIBUTOR No. 6740" on page 117 of the December issue of COTTON, who is running 15/16-inch to 1-inch Strict Low Middling or less cotton, making yarns from 7s to 45s.

1. (a) Pertaining to the sizing of bobbins of yarn and the variation from the standard, we call it normal spinning if half of all four bobbin sizings that average from 2½ per cent below to 2½ per cent above standard counts show at the same time that all their individual bobbin sizings be within 2½ per cent below and 2½ per cent above standard counts. This is about the nearest we could come to covering the situation in one sentence. As to the approximate set-up of the individual sizings, the following table might best illustrate the frequencies:

Of All Individual Sizings

84%	within	5%	variations	=	+2½% to —2½%	of standard
5%	within	6%	variations	=	+3 % to —3 %	of standard
3%	within	7%	variations	=	+3½% to —3½%	of standard
4%	within	8%	variations	=	+4 % to —4 %	of standard
2%	within	9%	variations	=	+4½% to —4½%	of standard
1%	within	10%	variations	=	+5 % to —5 %	of standard
1%	within	15%	variations	=	+7½% to —7½%	of standard

This variation set-up, while approximate in nature, will not change for different counts, but will be the same whether we spin 10s or 40s, or for that matter, 100s.

The results in the foregoing table were figured as follows: Averages were taken from nine groups of sizings, each 24 bobbins.

Each of the received averages was then considered

the standard of that group. By comparing each individual sizing with the standard of its group, the following line up resulted:

Number of Individual Sizings

Group	Variation Within 5%	5-7½%	7½-15%
1	19	3	2
2	21	3	0
3	21	1	2
4	20	2	2
5	22	1	1
6	19	1	4
7	17	4	3
8	22	2	0
9	20	1	3
	181	18	17

Result of test No. 1:
83.8% of all sizings within 5% variation
8.3% of all sizings within 5 to 7½% variation
7.9% of all sizings within 7½ to 15% variation

Another test, using the same sizings, was made as follows:

One single average of all the 216 bobbins was taken and this average, which was 47s, taken as standard for this lot.

Variation Range	Range of Counts	No. of Sizings	% of Sizings
7½% below Std.	43.5s—45.1s	15	6.9
3¾% below Std.	45.2s—45.7s	16	7.4
2½% below Std.) 2½% above Std.)	45.8s—48.2s	161	74.5
3¾% above Std.	48.3s—48.7s	13	6.1
7½% above Std.	48.8s—50.5s	11	5.1
		216	100

Result of test No. 2:
74.5% of all sizings within 5% variation
13.5% of all sizings within 5 to 7½% variation
12% of all sizings within 7½ to 15% variation

The results of this test are more apt to reflect actual conditions than test No. 1, which looks a trifle too selected.

Still another method, most likely the only answer to the question, is, to split the 216 sizings into 54 4-bobbin sizings:

Test No. 3

	No. of 4-Bobbin sizings	Variation 1st Bobbin	Variation 2nd Bobbin	Variation 3rd Bobbin	Variation 4th Bobbin	% of 4-Bobbin siz.
83½%	14	5%	5 %	5 %	5 %	25.90%
	15	5%	5 %	5 %	7½ %	27.80
	13	5%	5 %	5 %	15 %	24.10
	3	5%	5 %	7½ %	7½ %	5.55
16½%	3	5%	5 %	7½ %	15 %	5.55
	3	5%	5 %	15 %	15 %	5.55
	1	5%	7½ %	7½ %	7½ %	1.85
	1	5%	7½ %	7½ %	15 %	1.85
	1	5%	15 %	15 %	15 %	1.85
Within 5% variation			54	51	42	14 bobbs. = 74½ %
Within 5% to 7½			0	2	8	19 bobbs. = 13½ %
Within 7½ to 15			0	1	4	21 bobbs. = 12 %

83½% or 45 4-bobbin sizings average each within 5%
16½% or 9 4-Bobbin sizings average each outside 5%

Finally, test No. 3 for 4-bobbin group sizings may be condensed as follows:

4-Bobbin Sizings

(1) 83½% of all 4-bobbin sizings should size in their average within 5% of standard counts.

(2) 16½% of all 4-bobbin sizings may size in their average beyond 5% of standard counts.

(3) From all individual bobbins
74½% should size within 5% variation.
13½% may size within 5 to 7½% variation.
12% may size within 7½ to 15% variation.

(4) As the 16½ per cent of the 4-bobbin sizings that size beyond the standard range should not be considered good sizings, and therefore be dropped from summary, subject to frame change, the 83½ per cent of the "good" sizings would line up as follows:

Of the good 4-bobbin sizings

31% should vary	5%	5%	5%	5%
62% should vary	5%	5%	5%	beyond
7% should vary	5%	5%	beyond	beyond

(5) From the individual sizings within the good groups
80% should size within 5% variation
12% may size within 5 to 7½% variation
8% may size within 7½ to 15% variation

(b) Frequency of sizing bobbins of yarn. A mill that runs various or different counts and different cotton qualities has to do a lot of changing, and does well to size all spinning frames every working day with the exception of frames that will not fill a doff every day. Mills with fewer counts and fewer changes could easily stretch their sizing schedule to suit their demands. A fortnightly breaking strength test from every frame should be sufficient unless some new cotton qualities or crops are to be tried or introduced.

2. (a) Frequency of testing drawing sliver, and variation allowed. The finishing drawing sliver may be weighed two or three times per shift. A fair allowance is 3 to 3¼ per cent on each side of the standard.

(b) Method of testing drawing sliver. It is better to weigh each sliver from each delivery separately and then average them. Some mills use a 3-yard sizings, the 3-yard length being laid double on a 1½-yard board, the protruding ends being cut off.

3. Creeling breaker and finisher drawing. The practice of creeling in three full cans behind the breaker drawing deliveries seems to be a good way to ward off excessive variation due to card stripping losses. On the other hand, mixing of cans behind the finisher drawing frame looks advisable because the doubling is naturally balancing individual variation.

4. (a) Compensation for non-standard picker laps or running cards with different drafts to compensate. I think the practice of re-running out-of-weight picker laps is generally uselessly overdone. For example, should four laps out of 100 laps each be two pounds overweight at a standard lap weight of 40

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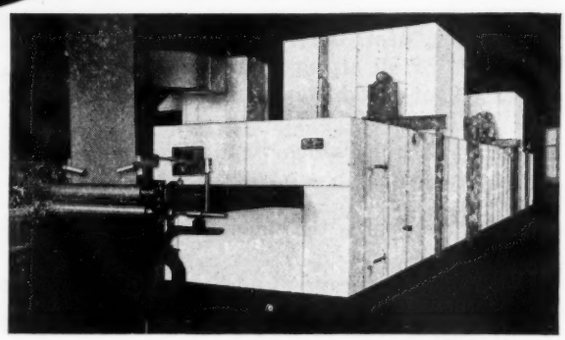

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pounds and a total output of 4008 pounds, the 8 pounds will constitute only .2 per cent against the desired 4000 pounds. If such "outlaws" would not total over four per cent of the total output and not be too far off the standard, why could we not send them out in pairs, a light one and a heavy one with every set of 50 normal laps?

(b) Weight of card sliver practical to run. I have never been an advocate of heavy card sliver. 60 grains per yard should, under normal circumstances, give good results if the drawing frames are not taxed over a draft of 6.

(c) Light fast carding or slow heavy carding. The best results are to be expected by compromising between sliver weight and doffer speed. Choosing between the two alternatives, a light card sliver and faster speed should prove better. It is better to take a small bite, chew it fast, than to overstuff the mouth and choke.

CONTRIBUTOR NO. 6748

Making Loop Selvages

Gives his method and requests information from others making loop selvages . . . . . .

EDITOR COTTON:

On certain fabrics it is often necessary or desirable to make loop selvages. These selvages are most commonly made by the use of piano wire on each selvage. The piano wire passes through the temple, the reed, and the harness eye, and is connected back to the harness to a cord which passes through the stop motion drop wire, and is tied to the whip roll shaft. It is advisable to have a coiled spring, either where the cord joins the piano wire, or where the cord joins the whip roll shaft. This spring serves to take up the variation in tension and lessens the possibility of the piano wire breaking.

Assuming that a loop selvage is wanted on each side of the cloth, it will be necessary to have the piano wire running through each selvage. On plain weaves these two wires would be handled just the same as two additional ends in the selvage, that is, one wire will pass through a harness eye in the front harness and the wire on the other side will pass through an eye in the back harness.

Better results will be obtained by picking the shuttle under the piano wire instead of over it. For example, if when the shuttle is leaving the left hand box the front harness is up, then the piano wire in the left hand selvage should be run through an eye in the front harness.

A great deal of trouble is experienced with this piano wire breaking and so far as we know there is no wire which will not break to some extent when being used for forming a loop selvage. A good grade of piano wire, however, is the best thing we know of to use for this purpose.

It is perfectly possible that mill men have discovered a more satisfactory method of making loop selvages, and if so, I shall welcome any suggestions they may have.

CONTRIBUTOR NO. 6775

Asks About Picker Settings

EDITOR COTTON:

About two years ago we installed the one-process picking unit and to date all of the speeds, settings, beats per inch, etc., are just as the installation man left them. We are getting fairly good results from this process and our yarn breaking strength stays reasonably close to standard; however, we think that we would get better results in cleanliness and breaking strength if our settings were a little closer and the beats per inch decreased. Before doing so, though, we are asking the readers of COTTON to give us their opinions and advice regarding our present set up.

We are running 1-inch Middling cotton making a 13½-ounce lap. Speeds and settings are as follows:

2-blade breaker beaker	1158 r.p.m.
2⅛-inch feed roll	15 r.p.m.
Feed roll to beater	3/16-inch
Beats per inch	23.13
2-blade intermediate beater	1288 r.p.m.
2-inch feed roll	13 r.p.m.
Feed roll to beater	3/16-inch
Beats per inch	31.54
3-blade carding finisher beater	965 r.p.m.
2-inch feed roll	13 r.p.m.
Feed roll to beater	¼-inch
Beats per inch	35.44

CONTRIBUTOR NO. 6790

"The Old Card Doctor"
(Third Visit)

EDITOR COTTON:

As "The Old Card Doctor" pens these lines, he hopes that they will be a lasting help to the card grinders that are now in the position that he once filled. Some of the young fellows have come to look on the card as a simple machine, the old doctor knows that there are small holes that cause leaks as well as the large ones.

The cards should be perfectly level and on a sturdy foundation so that there will be no vibration of any part or parts of this machine. When the cards are leveled, quarter-round should be placed around the openings to insure the card from any air-draft, which may pass into or beneath the cards. Improper air passages will be detrimental to good carding. Let's remember that we are carding our reputations in every web taken from the doffer; let's see that all doors around the cards are closed, and that all bolts are in place, that all nuts have been tightened, that all settings have been properly tested, and that they are to the right gauge.

The doctor recently asked a grinder if his settings were in order on a card that had just been

The first visit of "The Old Card Doctor" was reported on page 91 of the July 1937 issue; the report of his second visit appeared on page 102 of the January 1938 issue.—THE EDITORS.

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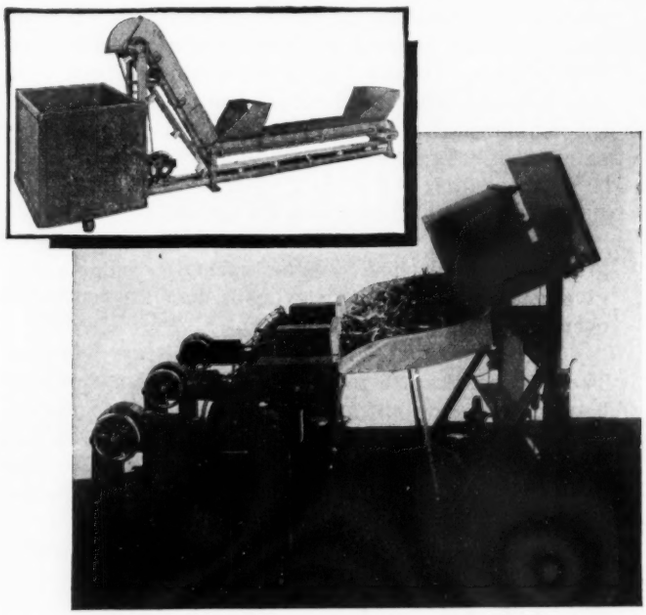

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ground and the grinder replied that they were. Upon inspection the doctor found that the licker-in was out of true; this was removed and a new head and journal put in, but the trouble was not removed completely, so a quadrant was put in and the screen setting tested, whereupon it was found that the screen was badly out of its curvature and therefore did not carry the settings as it should have. The old doctor took the grinder to the rear of the card. Here he found that the lap-roll journal was so worn that it was causing the gearing to run irregular, and in turn was giving an uneven web.

The grinder turned to the old card doctor and said, "Look here, how do you manage to see so much the matter with a card; I have gone over this card for the past 20 years and you are showing me some things that I did not really think would effect the web." The old doctor replied that he had been called in to diagnose the case and if he did not find the trouble he would not be much of a doctor; he further contended that one can't be too careful in checking the cards because one's reputation is being checked at the same time.

He then called the grinder's attention to a feed roller that had worn a crevice in the feed plate, all the way across from side to side. He explained that a lap could never be held with that condition existing. The feed plate was removed and the worn place filled in level with the surface of the rest of the plate. The settings were again begun when another bugaboo was encountered. "Look here, grinder, did you know that the feed roller has rubbed that plate so long that this end of the feed roller is smaller than the other end by the thickness of 17/1000-inch? No wonder that selvage looked so different when we started that card. Well, well, grinder, take this feed roller and have it turned off true and have the same amount machined off the bottom of the bearings so that the feed roller will rest within 5/1000-inch of the feed plate, and so it will grip the lap from side to side and eliminate jerk-ins of the lap. You see here, grinder, here is the idea, the roller will now hold the fibers in the lap firmly and the results are conducive to good carding."

The old doctor had been looking over cards for a number of years, and other textile machinery too, and he had learned that no matter how much was learned, there is always plenty more still unknown. Once the old doctor had had the feed plate cut down and had changed the angle of the feed plate nose and smoothed it somewhat; the results were a decided improvement in the web. With this feed plate improvement the rest of the card was to be set but it was found that the licker-in had high and low places on it. The machinist was requested to buff the licker-in and then burnish it until the points were needle-like, which he did, all the time striking the back of the teeth. This made the licker-in as good as new and only cost a little honest effort.

"We have the licker-in in good shape, so let's put it in the card and adjust it to the proper gauges, but before we start the card, let's take out one of the mote knives and set the other mote knife so it will be exactly half way between the nose of the feed plate and the nose or lip of the licker-in screen. Let's turn that mote knife around backwards, or have the straight side to the licker-in," said the old doctor. Then he explained that this would remove less good stock and break fewer of the good fibers, and clean the stock better, delivering an evener web. Since the mote knife had been changed to do the cleaning, the feed plate was set for tensil strength. The settings were:

Licker-in to feed plate 17/1000-inch to 22/1000-inch.
Mote knife to licker-in 5/1000-inch.
Back lip of licker-in screen 112/1000-inch.
Front lip 5/1000-inch.
Licker-in to cylinder 7/1000-inch.
Back knife plate bottom 17/1000-inch.
Back knife plate top 22/1000-inch.
Flats set just to clear top edge of knife plate and then cylinder screen back top edge to 12/1000-inch.
Middle to 34/1000-inch.
Front lip to 3/16-inch to ¼-inch from cylinder.
Doffer to cylinder to 9/1000-inch.

This setting does not allow the removal of so many of the small motes and neps from the cylinder, and it allows them to be carried on back to the flats and to be deposited there in the flats and taken off in the strips, which is the proper place for them to go. The doffer comb was set just as far from the doffer as possible, so that it still removed the web without stretching it. And here again a lot of small motes and neps are eliminated from the sliver. The web should be made to sag slightly.

In setting the flats:

Front stand 7/1000-inch.
Second stand 9/1000-inch.
Third stand 10/1000-inch.
Fourth stand 11/1000-inch.
Back stand 12/1000-inch.

These settings will give a wedge shape setting which is desirable. Then the card has first breaker flats, second breaker flats, first intermediate flats, second intermediate flats, and finisher flats. Set the stripper comb just to clear the flats from edge to edge, and the front knife 17/1000-inch at the bottom edge and 29/1000-inch at the top edge. The stripper plate can be set to the percentage of strips wanted, according to the class of work desired.

The old doctor says that good carding cannot be secured without doing these things. A card is either set to manufacture quality merchandise or it is not.

THE OLD CARD DOCTOR

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$1200 \times 10 = 12{,}000$

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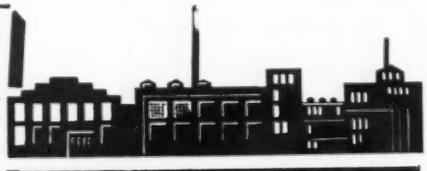

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Continued from Page 105

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Knitting Section

EDITORIAL

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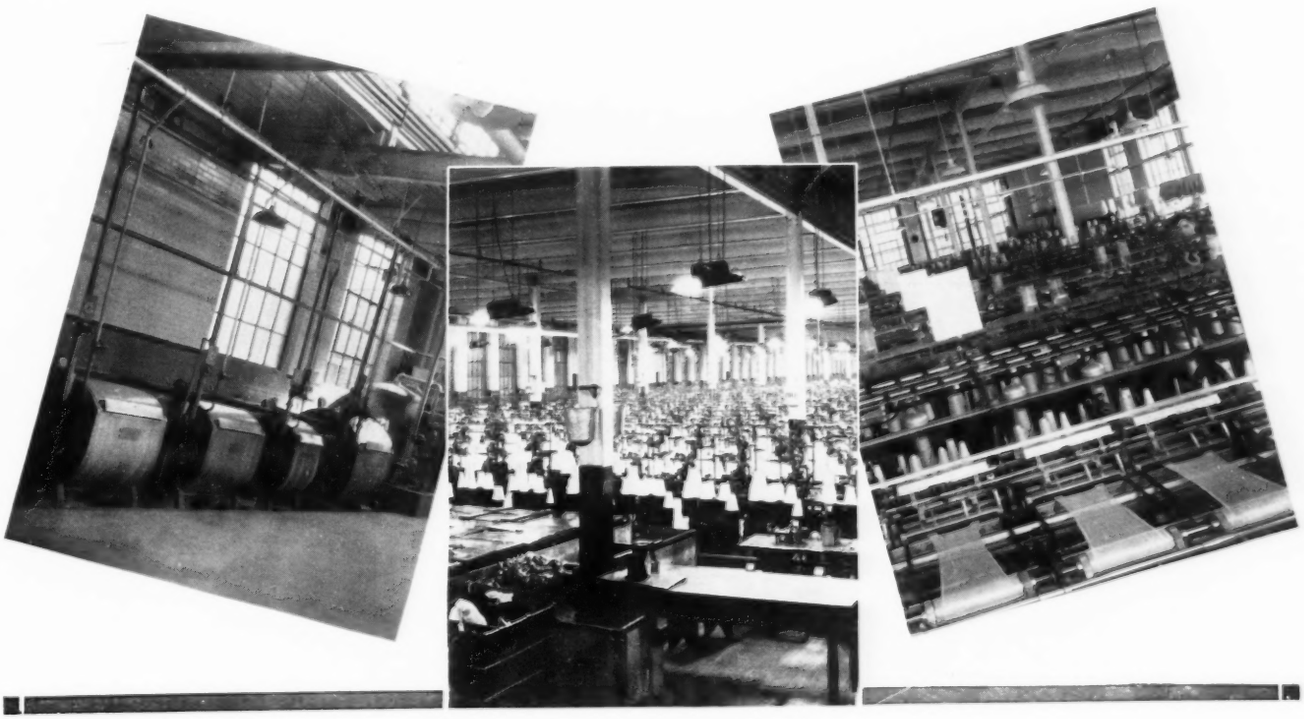

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The Maintenance and Fixing of Full-Fashioned Hosiery Machines

Adjustment of Tension in Knitting

By Arthur J. Cobert

THIS is the seventh installment of a series of articles on full-fashioned machine maintenance, being prepared especially for COTTON by a competent mill man. The first installment appeared on page 103 of the July issue, the second on page 117 of the August issue, the third on page 119 of the September issue, the fourth on page 113 of the November issue, the fifth on page 131 of the December 1937 issue, and the sixth on page 111 of the January 1938 issue. Thus far the vertical motion of the needles, the horizontal motion of the needles, the function of the regulator, the formation of the stitches, sinker-head and knock-over bar analysis, and jack head and slur cam analysis and adjustments have been discussed. This instal'ment is devoted to the adjustment of tension in knitting. The author will take up any particular phase of fixing you may request, or will answer practical questions submitted to him through COTTON.—The Editors.

MUCH CAN BE SAID on the subject of attaining uniformity of tension in full-fashioned knitting, especially since the multiple head and legger and footer type of machine is in general use. This factor alone presents one of the biggest problems in a hosiery mill; uniform lengths and perfect matching between the foot and leg. Each mill has its own system in handling this matter with more or less satisfactory results and no one method could be adapted to every requirement. So many outside conditions tend to produce variations in lengths and stitch size as to be almost too numerous to mention.

There is much difference of opinion as to the method of counting courses on a knitting machine. For example, what constitutes 48 courses per inch in one mill would be considered something entirely different in another. Nevertheless, one thing is certain. Regardless of the method used, each person responsible in the same plant for the courses and lengths should use identically the same procedure as the rest in order to insure uniformity.

Matching of the foot and leg depends primarily upon the evenness of the legs. Without this only a haphazard union can result, with a high percentage of irregulars from this cause. Records should be kept, not only of how often the leggers are checked, but also of every change made on the footers. In many mills today only the most obsolete methods are used to check courses, when in reality this should be one point that could not be over-emphasized.

Setting Machine for Uniform Length

In this article we will try to confine our discussion to the actual adjustments of the machine for uniform lengths in knitting and not to the methods best suited to handle this problem for an entire plant.

Changing stitch size on a full-fashioned machine is accomplished in several ways. The regulator or slacker is used to make a general change over the entire machine, tighter or looser as the case may be. The newer machines have two of these strategically located on the regulator shaft where they will do the most good. Some even have three, one to be used in the heavier portions of the fabric.

Beside the slacker itself there is a series of brackets operating from this shaft to the presser arm, which, when adjusted individually, will make a change in stitch size in that particular area nearest the bracket in question.

Then, of course, there is a limited amount of adjustment of the slur-cocks for the individual sections together with a limited amount on the needle bars themselves. The latter requires the utmost precaution in making any changes as here any adjustment will change the entire needle motion, a most undesirable condition. This has been discussed at length in the second article [Page 117, August 1937 issue] of this series on the horizontal needle motion.

To start with, perfect alignment of needle bars, sinker heads, verge plates and jack heads is necessary. In other words, we must start from some point as a standard. It is suggested here that if a machine is producing exceptionally uneven fabric a good plan would be to re-gauge the parts above mentioned over the entire machine. All these adjustments have been explained in previous articles, so it will not be necessary to discuss them now.

After a machine has been aligned as nearly perfect as possible, the work of adjusting the individual heads should be carefully and cautiously followed with discretion. After fabric has been run out a few inches the variations of the different sections become apparent. The fixer first measures the course per inch, maneuvering the slacker or slackers to bring about an average stitch size over the entire machine. He then takes the individual sections and tries to gain uniformity of each by the other adjustments of the machine. It might be mentioned here that if the parts are in good condition the amount of work required to even the tension will be made easy. For instance, a re-needled set of bars will align much easier than old ones. It is often the case that old needles have been pliered out of line

to such an extent as to cause tight and loose places in the fabric, making it exceedingly difficult to adjust the heads.

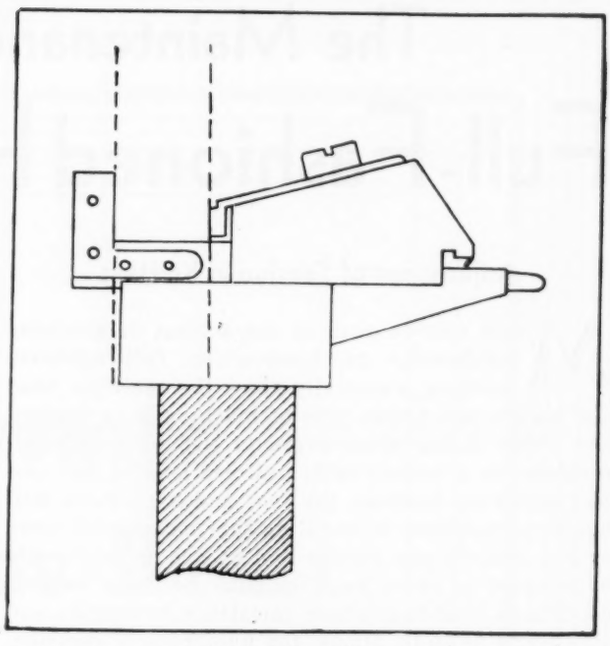
The jack heads should be adjusted first, decreasing tolerance here and there where the sections knit a little tight on one side and increasing tolerance where they knit loose. Do not, under any condition, over-step the limit of tolerance in any section. The amount of clearance or tolerance between sinker butts and verge plates is of the utmost importance as the variation permitted here is so limited as to cause a great deal of trouble unless kept within the band generally accepted as standard. The rule is as follows:

Maximum clearance should not exceed eight or ten thousandths of an inch. Beyond this point the sinkers cannot be depended upon to form a definite size stitch each succeeding course. The minimum clearance permissible can be so little as to be almost nothing, so long as the sinkers do not jam tight against the verge plates. Where excessive clearance is present, every variation in yarn tension such as tight or loose cones, tension of the yarn coming through the moistening troughs, or merely in the way certain ends have to be threaded to pass around various parts of the machine will prevent the sinkers from moving forward as far as they should. This results in uneven knitting. In these instances the speed of the machine will make a difference in stitch size. If the machine is started slow, the yarn tension may hold the sinkers back enough to make smaller loops. After the machine is speeded up the sinkers may be thrown against the verge plates resulting in a larger stitch. This condition is especially evident on a footing machine where excessive clearance exists between verge plates and sinker butts in front of the slur cams. The first several courses knitted will appear tighter than the rest producing a distinct horizontal line at the junction of foot and leg.

Other factors enter into the picture at this point. If, for some reason, the sinkers are not as free as they should be, gum or residue of some nature clogging the sinker grooves, the sinkers will not be thrown as far forward as they should. This is often the cause of crooked heads and uneven knitting. At one time they will appear to knit fairly uniform and then change for no apparent reason. This condition becomes quite evident if the sinkers and jacks are flushed out or lubricated, which is quite necessary from time to time. Keeping the clearance at a minimum, the sinkers and jacks cleaned and oiled will reduce these variations to a great extent.

If we assume that all the slurcocks have been set to a certain standard, say five thousandths of an inch, we will have adjustment either way without over-stepping our maximum or minimum tolerance. It is often necessary to have more tolerance on one side of the section, providing, of course, we do not exceed our maximum or do not jam the sinkers on either side.

After all the sections have been checked one time, more fabric should be knitted to show up the remaining variations. The same procedure should be followed again, checking the tolerance in the uneven sections and resetting jack heads and slurcocks until all adjustment is made that is possible by this method. Even then a few heads may appear to knit tight or loose or crooked. Let us assume we are checking a double needle bar machine. The one section of a certain bar knits the right tension while the adjoining head knits loose. We have previously checked the alignment of the bar itself and found it accurate. That is, as close as is humanly possible. The loose section cannot be further adjusted by the slurcock as we have reached our maximum clearance. Now it may be possible to decrease the tolerance in the other section, making that knit loose also. The needle bar must then be moved slightly outward to tighten both heads. On the other hand we may not be able to decrease the clearance in the adjoining head as it may be very close. In this case nothing remains but to check the verge plate in the loose section and move it back a couple of thousandths of an inch off gauge. This takes up excessive tolerance and decreases the size of the stitch. It is to be emphasized here that the amount off gauge permitted of the verge plates is very small. Usually there is enough clearance between verge plates and catch bar while on the high point to go back with the plates two or three thousandths of an inch without jamming. It is far better to move a verge plate toward the catch bar than forward, as bringing it forward will only tend to throw the catch bar.



Showing how striking edge of verge plate must be perfectly parallel with sinker butt for best results.

Let us give another illustration. A certain section is knitting tight while the adjoining head is the correct length. In the tight section we have a very small amount of clearance, as little as is safe to prevent jamming the sinkers. The other section has already considerable tolerance even though it does knit the proper length. It is better to reduce this and cause it to knit tighter by moving the verge plate back a little. The needle bar must then be moved in to make both heads knit a little looser.

Naturally, moving the bars throws them out of line, but this practice must be resorted to at times. As in everything else, discretion is necessary when making these changes. There may be unseen variations here and there that cannot be detected with the gauges.

In the case of single needle bar machines even greater caution should be used in moving the bars as it is too easy to make an adjustment here without first checking the other parts.

In many instances, several sections will knit tight or loose in a certain area close to a regulator bracket. Here it is much better to make an adjustment directly on the bracket rather than moving the bars or slurcocks. This adjustment will not disturb the needle motion in any way, no more than moving the slacker.

Sometimes it is necessary to move only one side of a verge plate off gauge to straighten the knitting of a particular section. The fixer should try to divide the amount of tolerance by moving first the verge plate and then the jack head towards each other rather than going the whole distance with the verge plate alone.

In a previous paragraph it was mentioned that all parts relative to stitch size, if in good condition, makes the work of straightening sections easy. This is especially true of verge plates. Referring to the fifth installment of this series [Page 131, December 1937] it was stated that new verge plates are always superior to old ones that have been re-cut. It is extremely difficult to re-cut the proper degree or angle of the striking edge of the plate. Unless this edge is perfect, undue wear results at this point, causing unevenness in the sinker tolerance. This in turn creates a condition of crooked heads on the machine difficult to adjust.

The jacks must also form a true line. Badly worn jacks will make aligning difficult. These can be either filed or re-ground quite successfully and should not present too great a problem.

Crooked slurcocks are also a source of annoyance in straightening heads. Correct sinker tolerance cannot be maintained if this condition exists. This adjustment has also been explained in an earlier issue.

In summarizing this chapter of the series, it will be noted that correct sinker tolerance is by far the most important single factor in relation to tension. Next in importance is keeping the sinker heads and jack heads clean and well lubricated. Maintaining uniform humidity and temperature in the plant is good insurance to correct lengths. Moistening troughs should be cleaned periodically and new felts inserted regularly. The less felts or pads required to preserve tension of the yarn in the troughs, the better. Some mills have eliminated these entirely with surprisingly good results.

Our next chapter will deal with the narrowing motion and narrowing frame adjustments.

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An Eye on the Knitting Mills

Hudson Silk Hosiery Company, Charlotte, N. C., has completed a two-story addition to its plant and has begun the manufacture of boxes. Production is 40,000 boxes per week. The company is also to build a dye house and construction will be under way soon.

Chatham Industries, Inc., Siler City, N. C., a company formed to erect a new hosiery mill for Mock-Judson-Voehringer, Inc., announced work will be started on the new mill promptly. It will be known as Siler City Hosiery Company.

It is reported that a full-fashioned hosiery mill will be established at Dayton, Tenn., and when completed will employ 200 persons, though at first only about 60 operatives will be used. Walter Schroeder of Niota will operate the plant.

Ware Valley Manufacturing Company, Ware, Mass., will liquidate and will move the machinery to Cartersville, Ga., Chattanooga, Tenn., and Bennington, Vt. This is a movement to consolidate the operations of the E-Z Mills.

A-Q Silk Mill, Timmonsville, S. C., is a new plant to be a Tricot knitting mill. Operations will be started just as soon as machinery is received from abroad. A building has been renovated to house the plant.

Walker Mills, Inc., East Gastonia, N. C., is a new knitting mill now in operation, housed in a section of the old Ozark Mill building. Anklets and wristlets for the glove and garment trade are manufactured.

Wilson (N. C.) Manufacturing Company has begun operations. More machinery will be added later, and when the plant is fully equipped it will employ about 250 persons.

Norris Hosiery Mills, Cleveland, Tenn., is a new anklet hosiery mill established by O. N. Norris, of Chattanooga, Tenn. It has been started with 10 knitting machines.

Hatch Full-Fashioned Hosiery Company, Belmont, N. C., will double the size of its plant. At first only a few machines will be added; others are to be installed later.

A hosiery mill at Crewe, Va., will be established by Pennsylvania interests. The citizens of Crewe are raising funds to apply on the capitalization.

A Philadelphia hosiery concern will open a branch plant at Cape Charles, Va., renovating a building for occupancy. About 25 persons will be employed.

Valparaiso (Fla.) Hosiery Mill has received most of its equipment now and the plant is operating at full production.

It is reported that a Pennsylvania hosiery manufacturer will locate a plant at Suffolk, Va., to knit full-fashioned hosiery.

Negotiations are under way at the Maryland state penitentiary to establish a knitting plant for both underwear and stockings.

The new hosiery mill building at Athens, Tenn., has been completed and is ready for occupation.

It is understood that a modern hosiery mill may be established at Blackstone, Va.

J & J Hosiery Mill, Philadelphia, Pa., is the name of a new mill recently established.

"No man can make a good coat with bad cloth"

OLD PROVERB

. . . and only with modern machinery can we provide satisfactory wages without sacrificing the advantage of low unit cost . . . Full-fashioned machines that were new in 1930-31 cannot compete on any basis with the new READING high-production Machines of 1938. Write us for facts.

TEXTILE MACHINE WORKS • READING, PA.

KNITTING KINKS

Practical Discussions by Cotton's Readers on Various Knitting Subjects

The Spiral Attachment for S & W Machines

THIS article follows the series of eight discussions that we have published from the same author which dealt with the operation and adjustment of the Model K knitting machine, and the article published in the January 1938 issue on the spiral attachment for S & W machines. The first eight articles dealt largely with the plain machine (and universal parts used on the entire line)—the January article and this one broadens the discussion, taking up the widely used spiral attachment as applied to Model K, HH, and B machines, in the production of men's, women's, misses', and infants' lines.

THE 25-STEP SPIRAL ATTACHMENT is without a doubt one of the most flexible devices ever made by the Scott & Williams company for their machines. It is applicable to Model K, HH, and B-5 machines, including the smallest diameters in the latter, and thus making it possible to modernize obsolete machinery. Large numbers of machines have been equipped with this valuable device and the scope of its usefulness is constantly being increased.

The main difference between the 13-step and the 25-step device is the manner in which the respective devices are controlled. The 13-step attachment has but one selector, which is controlled by a series of different height step cams mounted on the striper drum. The 25-step device has 25 selector fingers, each finger operating independently on one step of the 25-step spiral jacks and controlled by the selectors in the selector drum.

The selector drum is supplied with a rack wheel having up to 96 teeth, each tooth supplying one move for the selector drum and covering one revolution for the cylinder. Motion to drive the selector drum is supplied by a racking pawl, racking rod, and a lever, the latter being attached to the machine frame and equipped with a roller which rides against a series of adjustable cams located on the side of the high speed gear.

Spiral Jack Controlling Mechanism

Fig. 1 shows the spiral jack controlling mechanism in detail. *A* is the selector finger, *D* selective jack butts, *C* selector finger pivot, *B* actuating point, *F* selectors, *E* selector drum, *G* racking pawl, *H* pawl lever, and *I* pawl lever rod.

Float patterns, meshes, and mesh designs are made with the 25-step spiral attachment by moving the selector finger in and out. The actuating point *B* is cammed in by the selectors *F* thus permitting the selector finger at *D* to press the spiral jacks inward when the actuating point falls off of a selector into a space where the selector butt has been broken out as shown in Fig. 1. The complete controlling action is simple. The racking pawl *G* drives the selector drum; the selectors and the selector finger spring supply the in and out movement when the actuating point of the selector finger moves in and out against the selectors.

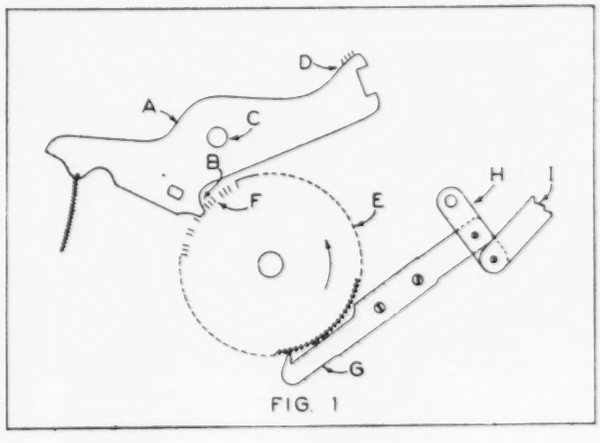

FIG. 1

In setting up patterns and designs on the 25-step spiral attachment, the selective butts on the spiral jacks are left *on* on the jacks which are under the needles that are to show up in the pattern and the selective butts on the selectors are broken *out*. Where plain knitting is desired, the selective butts on the spiral jacks are broken out. All needles which run at the upper needle level (as shown in Fig. 2) produce

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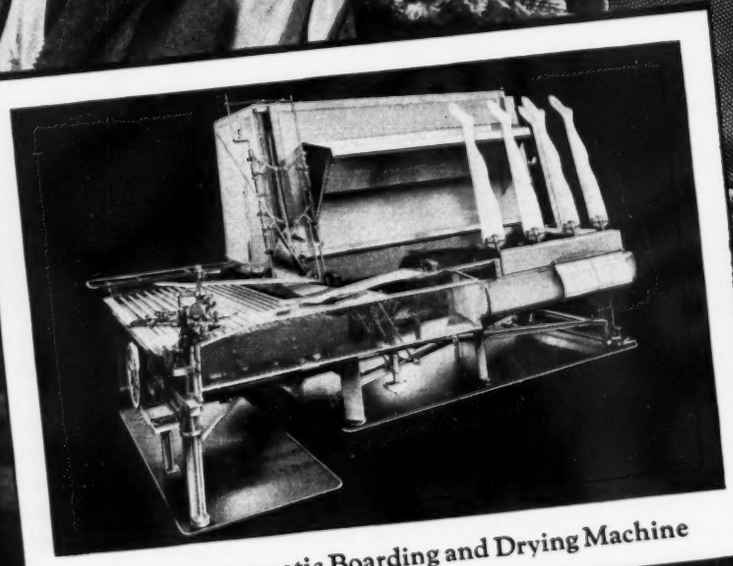
The eight previous articles, covering the operation and adjustment of the Model K machine, appeared as follows: Article 1, page 188, April 1937 issue; Article 2, page 157, June 1937 issue; Article 3, page 110, July 1937 issue; Article 4, page 127, August 1937 issue; Article 5, page 131, September 1937 issue; Article 6, page 192, October 1937 issue; Article 7, page 119, November 1937 issue; Article 8, page 138, December 1937 issue; and Article 9, page 115, January, 1938 issue.

These articles have covered yarn arrangements, make-up troubles, the cross-bar assembly, transfer trouble, the cylinder, stitch cams, auxiliary side cams, lower jack cams, auxiliary racking pawl assembly, auxiliary racking cam, auxiliary cam bracket, pattern chain, driving mechanism, and the spiral attachment.

PROCTOR *Automatic* BOARDING MACHINE

Produces The Smooth, Uniform Finish Demanded in *Modern Hosiery*

The demand is greater this year than ever before for sheer perfection in hosiery. Today's manufacturer must meet this high quality demand and at the same time keep his production costs at a new low level. The modern Proctor *Automatic* Boarding and Drying Machine makes it possible for him to do both of these. Special features uphold the most exacting quality requirements, and production rates 66% to 100% *higher* are assured. It is a fact, that 2 operators of average ability can, with ease and comfort, produce *two thousand, five hundred and forty-four* pairs of women's full-fashioned, picot edge silk hosiery in *one* 8-hour day on *one* Proctor Machine! Remember, too, the important fact that this new Proctor & Schwartz *Automatic* Boarding, Drying and Stripping Machine occupies just 9½ x 11½ feet of floor space. Bulletin No. 240 will tell you more about it. Write.



Proctor Automatic Boarding and Drying Machine

PROCTOR & SCHWARTZ • INC • PHILADELPHIA

plain knitting and the needles which run at the lower level produce the floats or patterns.

25-Step Adjustments

Success or failure of any attachment depends to a great extent on two factors, first, correct designing, and, second, ample and positive adjustment facilities. A preliminary examination of this attachment reveals that a swell job of designing was done by the machine builders and anyone familiar with it knows that it has suitable and positive adjustments wherever necessary. The selector drum shaft is supplied with an adjustable bracket which is fastened to the upper deck

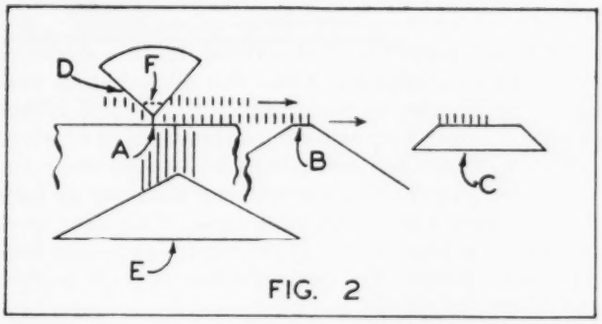


FIG. 2

and an eccentric stud which is located on the lower deck. These two adjustments permit locating the selector drum in proper relation to the selector finger. The selector drum can be raised or lowered, moved in or out, or to the right or left to assure correct relation between the actuating point on the selector finger and the selector. The setting of the selector drum is important for much depends on how accurately the selectors contact the actuating point of the selector fingers. An idling plate is located immediately under the selector drum rack wheel; this plate takes care of starting and stopping the selector drum as desired. Three control levers are pivoted on a shaft to the left of the selector fingers, and these are supplied with plates of various widths, which contact the back end of the selector fingers and press them out of action when necessary. Each control lever has an independent adjusting rod, motion being supplied by drum levers and main drum cams.

One other important adjustment in connection with the selector fingers is the reading finger guide plate. This plate is attached to a movable guide post and supplied with separating plates which keep the selector fingers evenly spaced and in proper alignment with the selective butts on the spiral jacks. The guide plate has ample adjustment which permits moving it in or out, raising or lowering, thus assuring full control of selector finger action. Due to the selective butts on the spiral jacks becoming longer from top to bottom, the guide plate must be set *in* farther at the bottom than at the top so that each selector finger will move the spiral jacks *it* contacts *fully in* according to the respective selective butt lengths. We will again call attention to the importance of breaking out the complete selective butts on the spiral jacks, also polishing off all rough edges and following out other suggestions in regard to spiral jacks which were made in the January 1938 issue of COTTON covering the 13-step device.

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. This department is open to all.

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Proper Needle Level is Important

Frequently trouble develops in making meshes and float designs due to improper needle levels. Fig. 2 shows needles at both levels. There should be about 1/8-inch space between the upper and lower needle butts. The left auxiliary raise cam must raise all needles high enough to shed the stitches while the right hand stitch cam is out. The jack raising cam *E* automatically takes care of the upper needle level

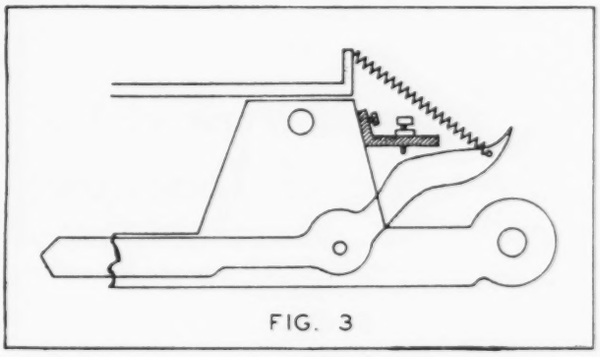


FIG. 3

when the spiral jacks pass over the cam; the lower needle level depends entirely on the switch cam leveling cam. This cam should bring all needles down low enough so the butts of needles remaining at the lower level will just pass over the top of the auxiliary side cam *B* and the top of the lower center cam *C* as shown in Fig. 2.

It is of course possible that the leveling cam *D* will become worn at the low point and fail to bring the needle butts down to the proper level; in such cases the leveling cam must be replaced. The fixer, however, can invite trouble by grinding off the leveling cam as shown at *F* when trying to prevent dropped stitches and other troubles. The needle leveling cam was made long enough to allow for reasonable wear on the low point, and the fixer will profit by keeping it well polished and *omit* the grinding.

Float Fingers

And last but not least, we come to one other important item in connection with float designs—the float fingers. Much depends on how near to the needle hooks the end of the float finger is set, especially the finger which feeds yarn to the needles run-

ning at the upper needle level and the height at which this finger lays. A simple and positive adjustment has been provided which permits moving the float fingers toward or away from the needles.

The fixer knows that the finger which feeds yarn to the upper needle level should be set just as near to the needle hooks as possible. No provisions have been made, however, to raise or lower this finger by adjustment and we have seen some sorry looking fingers in our day—welded, brazed, bent, twisted, beaten out, ground, and what have you. To those who would like to make a big improvement at a small expense, we offer a simple idea shown in Fig. 3.

Attach a small plate to the back of the latch ring bracket as shown, drill and tap a hole for a 6/32-inch screw, put a lock nut on the screw, and the job is done. We have not seen an adjusting device of this kind to date; this one or something similar may be old stuff to many readers, but we are passing the idea along for what it may be worth.

And so we come to a close with the series on "Fixing Model K Machines". We hope you have profited from the opinions offered.

MATTHEW K. MITCHELL

(Mr. Mitchell will probably take a little vacation now, but if you would like for him to begin thinking about some subjects to write on, let us have your suggestions.—The Editors.)

A Practical View of the Dyehouse of Tomorrow

As the average layman-superintendent sees it. There's much meat for thought here and the author would appreciate your comments . . . . .

EDITOR COTTON:

Many of the better hosiery mills throughout the country have kept strictly up-to-date by equipping the plants with new knitting machines, sewing machines, and almost all machinery necessary to produce quality hosiery of the latest styles and patterns, but have sadly neglected one of the most important departments in the mill—the dyeing department. Many a lot of perfectly good hosiery has been ruined in a dyehouse which is still being operated under the horse and buggy days method.

Unfortunately, few superintendents or managers know the first letter about running a dyehouse, and as a result the dyer gets little consideration in his numerous problems—and the writer is numbered among those that know practically nothing about chemicals or the technical end of the dyehouse. But there are certain fundamentals about the dyehouse that the average layman manager or superintendent can learn by making a study of this important link in the chain of manufacturing hosiery.

A recent survey of a dyehouse made by the writer revealed that out of a total of 18 machines, 3 had leaking outlet valves, 3 or 4 others had leaking hot or cold water valves, and one or two others had small leaks in other parts of the machines. Live steam was being used for heat in some of the machines and exhaust steam in the others, and still others had another method of heating. It goes without saying, no dyer can work out a formula that will produce the same shade under these conditions. On the machines with the leaking water valve, the dye run would probably be started with 50 gallons of water and within 45 minutes, with the water leaking in and the steam condensing, there would be about 75 gallons of dye liquor, which, of course, would not produce as dark a shade as the same size machines with the same formula and no leaking valves. The same thing would be true on the machine with the leaking outlet valve and the dye liquor leaking out. No dyer can run a dyehouse efficiently under the conditions mentioned.

Another condition that existed in this dyehouse that made poor operations was that all operators were paid time work on an hourly rate. Surely this system is wrong. Just imagine a group of men, most of whom are head of families, doing their best to get their lots out so they can register out and stop their pay an hour or two before regular stopping time. This time work method of paying is very much wrong, especially during slack periods. The quicker a run of goods is dyed and taken out of the boiling liquor the stronger and the better the goods will be, and the time work method will certainly not help to speed up the runs. There are various ways of paying piecework rates for dyeing.

And now, the dyehouse of tomorrow as visioned by a layman.

First, some accurate measure or meter should and will be provided whereby the water for the dye run can be measured for each dye run because the amount of water to be used for each run will be as definitely a part of the formula as are the different dyestuffs. In other words, a given amount of dyestuffs and a given number of gallons of water at a given number of degrees F. will produce a certain shade on a given number of pounds of silk or rayon hosiery, etc.

Second, the machines will be equipped with electric heating elements or some similar method, and no steam (either live or exhaust) will be turned directly into the dye liquor to dilute it.

Third, each machine will be equipped with automatic heat control so there will be no variations in the degrees of heat in the dye liquor, thereby making more even dyeing.

Fourth, each machine will be equipped with a good set of valves (some already are) so there will be no leaks in or out while a run is being made. This will not only make better dyeing but will save dyestuff.

Fifth, enough machines of various sizes will be provided so there will be a size machine to fit each run. It requires more dyestuff to dye 50 pounds of goods in a 100-pound machine than it does for 50 pounds of goods in a 50-pound machine—hence, the economy in having the correct size machines.

Sixth, the dyer will be furnished with the best of materials and operatives.

Seventh, the dyer will be furnished with a special light for matching shades so that he can match them uniformly on cloudy days as well as on fair days. This is essential. Without such a light no dyeing can be done in the early evening or night.

THAT'S WHY KNITTERS LIKE TORRINGTONS

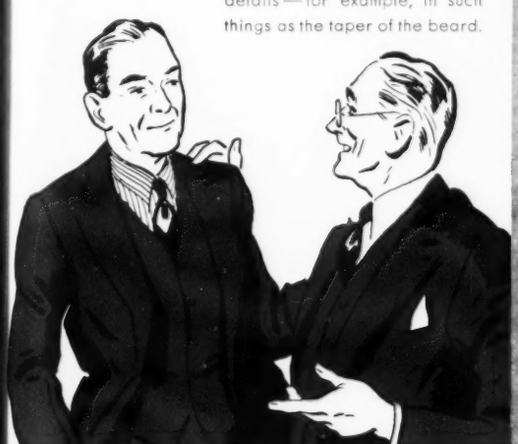
Knitting is a precision operation . . . and needles *must* be accurately made to give uniform results. Here's how uniformity in one minute detail makes for uniformly knitted fabrics. Torrington Needles, Sinkers, Dividers and Split Dividers are all *machine-made* with equal attention to detailed uniformity.

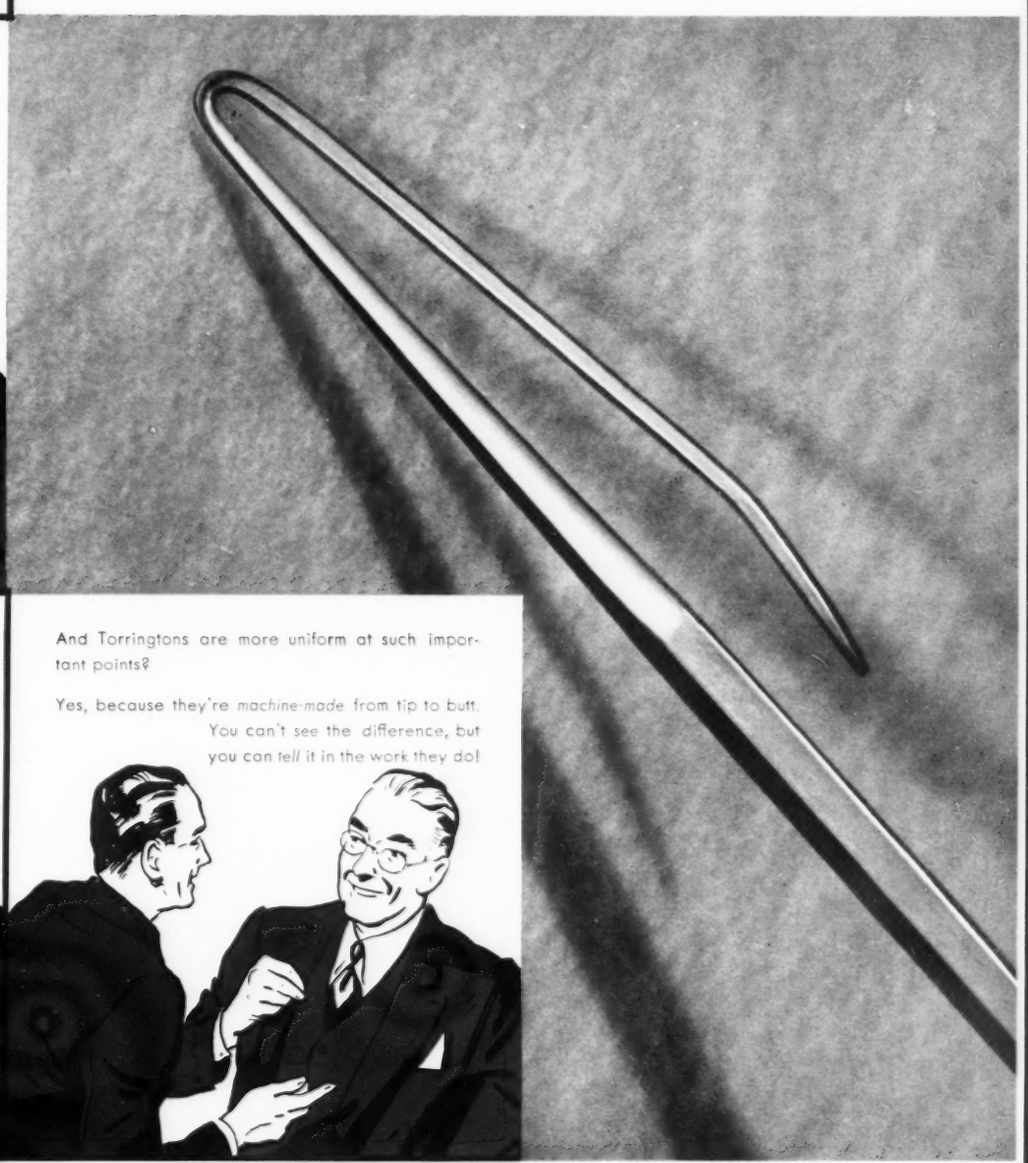
Why are your men out in the knitting rooms so insistent on using Torringtons?

Well, they give us smoother knitting, for one thing.

How do you account for that?

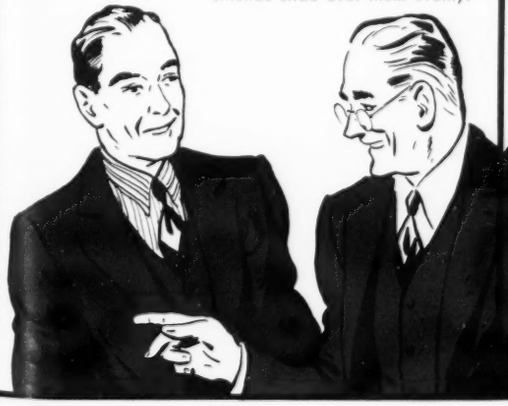
They're more uniform in the small details—for example, in such things as the taper of the beard.





Does that affect knitting?

Certainly, the taper must be uniform in all needles so the beards will close with uniform pressure and the stitches slide over them evenly.



And Torringtons are more uniform at such important points?

Yes, because they're *machine-made* from tip to butt. You can't see the difference, but you can *tell* it in the work they do!

TORRINGTON *Needles and Sinkers*

When a conscientious knitter thinks of good needles he thinks of the red and green box—for Torringtons have proved their value as the stronger, finer tempered, smoother finished *machine-made* needles. Experience shows that they can be counted on—always—to produce the superbly knitted merchandise that is the aim of every careful manufacturer.

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The Torrington Co., Ltd.	137 Wellington St. W., Toronto 2, Ont
The S. M. Supplies Co.	210 South Street, Boston, Mass.

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Torrington LATCH Needles

Eighth, all machine operators will be paid on a piecework basis and never on an hourly basis.

Ninth, an ample supply of pure soft water will be available at all times.

Some dyehouses are equipped with many of the foregoing items, and the dyer that has them should be thankful.

The question is, "Can we afford *not* to do it?"

CONTRIBUTOR NO. 6777

Take Care of the Pennies

Boiler room leaks, automatic regulators, yarn changes, slow machines, disagreeable dyehouses, and asbestos coverings form this homogeneous discussion by a mill man . . . . . .

EDITOR COTTON:

It was Benjamin Franklin, I believe, who said, "Take care of the pennies and the dollars will take care of themselves", and so it is with many of the little things often overlooked in the average knitting mill. For instance, in the boiler room there are many small leaks that could be stopped without much expense or trouble; automatic damper regulators, feed water regulators and proper firing in order to get the best combustion of coal and prevent excessive clinker formation would all net a considerable saving in fuel in a month's time.

The fire tube boiler, which is most common in mills, has two fire doors if it is more than 5 feet wide, and the best results can be obtained by firing them alternately, that is, shovel coal on one side the grate, leaving the other side red, preparatory to burning the gases given off the fresh coal; the next time reverse this, and so on. By this method the fireman can save himself much work and his employer considerable coal.

A wet ash pit is helpful. Keep two inches or less of water in the ash pit and the fire will glow brightly; it seems that the vapor rising from the water tends to prevent clinkers forming.

I am unable to understand why more mills do not use automatic damper regulators; they are inexpensive and reliable and will prevent much waste of steam through the pop valve. Less heat will be required to evaporate water into steam if the water line can be kept at the same level, or as nearly so as is possible; here is where the value of the feed water regulator lies.

Injectors should never be connected directly to the water supply line; it is often done, but better results will be achieved if the supply of water is drawn directly from a barrel or small well. With the latter arrangement the water will be forced into the boiler at a higher temperature. If the boiler is over loaded to the extent that one man cannot keep up steam, then the mechanical stoker may save the day, but, in any event, it is not good economy to over-load a boiler. Many assume that boilers can be stoked more economically mechanically, than by hand; however, railroad records show that locomotives equipped with stokers consume more fuel per horse power developed than those that are hand-fired. I suppose that is the reason why small and medium-sized locomotives that can be fired satisfactorily by hand are not fitted with stokers.

With reference to the knitting room, that is the place to start right, for mistakes made in that department cannot be rectified in the dyeing and finishing departments as some knitters seem to fancy. The manager should decide on the best yarn at the best price and stick to it, not changing from one brand to another without notice; different makes of yarn dye differently, even with the same formula and under the same conditions. Money saved shopping around in the yarn market is often lost in unsatisfactory dyeing and in dissatisfied customers.

Handling Yarn

When the yarn arrives at the mill it should be unpacked as soon as it is possible and placed on pinboards holding 6 to 8 cones. A sufficient number of skeleton trucks should be provided to hold the pinboards, and as the material is needed it could be placed near the machines convenient for the knitter; the idea, of course, is to avoid packing cones one on top of the other, which is sometimes done and which cause the bottom cones to become marred due to pressure of those on top. The less the yarn is handled the better it runs.

Some knitting room foremen—I wouldn't say that many of them do—think that they are saving the mill money by taking links out of the pattern chain to shorten the toe and heel of the hose. Of course this makes bad looping and bad boarding, and, they wonder why. However, I think a short heel is better as it brings the foot nearer to a 90-degree angle of the leg, which is the natural position of the human foot. I have noticed that socks with a short gore fit my own foot better and do not wrinkle in the instep as much as one with a regular gore. I do not mean to say that hosiery should be boarded on forms with the foot at right angles to the leg, but the gore could be shortened to bring it nearer than the customary 45 degrees to advantage.

Unit Heaters in Dyehouse

The dyehouse: This is, notoriously, a disagreeable place in which to work, especially during the winter months when the steam fog is often so dense that it is difficult to see what is going on. The installation of unit heaters in the dyehouse is just as important as it is in any other department of the mill, and a sufficient number of these would circulate warm air over the room and tend to eliminate the otherwise disagreeable and unhealthy condition. Also, it would be surprising how much less steam it would require to heat the dyeing machines if globe valves were replaced by gate valves, the latter offering very little resistance to the flow of steam; the globe valve, of course, offers much resistance.

I have seen scores of men turn on the steam rapidly on a cold morning while the pipe line was cold, causing nerve-racking poundings; these poundings are warnings that should not go unheeded. I remember one instance of this kind. One cold morning a fellow worker, who meant well, opened the valve too rapidly on the dyehouse line and the condensation was so sud-

Thirty-Fourth Annual

Knitting Arts Exhibition

COMMERCIAL MUSEUM • PHILADELPHIA

• APRIL 25, 26, 27, 28, 29, 1938 •

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For them it is the most economical and effective means of demonstrating their products to the entire knitting trade in one place at one time. They measure the value of the exhibition by the results—and come back every year. The leading manufacturers will be there this year. You cannot afford to stay away.

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den that the steam pressure behind it split the pipe for several feet and we lost five hours replacing it. Even on low pressure lines steam valves should be opened slowly. Give the valve a slight turn, and if you hear a pounding, wait until it stops before turning on any more. In this manner, many leaky joints and possibly split or broken pipe fittings will be avoided.

Too little emphasis is placed on asbestos coverings for steam pipe lines; some seem to think that if it is a low pressure line and not actually exposed to the weather, no covering is feasible; that, to my way of thinking, is a mistake.

No doubt an older head in the hosiery mill game would wonder why I elaborate on things which should be quite obvious, but it seems to be human nature, when anything goes wrong in any line of endeavor, to look for the big and forget the little things. I have known knitting machine fixers to spend half an hour trying to fix a machine when all that was necessary was a slight adjustment which would have taken only a minute, but he was looking for one of the more common causes.

Many of us can remember when the automobile was a twentieth century wonder, before there was a service station on every corner lot and cross road, we would be driving out in the country and the car would stop suddenly; the first thing we would do would be to lift the hood and look over the engine; but, finally, we would remember that the gas tank hadn't been filled lately—Let's not overlook the little things; they cause quite a lot of trouble sometimes.

"Take care of pennies and the dollars will take care of themselves."

CONTRIBUTOR NO. 6610.

Oiling Bearings

EDITOR COTTON:

In answer to the inquiry, *How often should the various bearings on a Banner machine frame be oiled when the machines are run two 8-hour shifts for five days a week?*, which was asked me by a friend not long ago, I pass my answer along to him and the readers of COTTON.

From my experience in fixing circular knitting machines I have found it very good practice to oil *all* the bearings in the frame, or base, as we call it, of the machine at least once a week, when running two 8-hour shifts for 5 days.

A good grade of medium weight oil is preferable if you want your machines to run through the years with a minimum of repairs. Oil is cheaper than machine parts and our boss says he would rather we waste a little oil than the machines.

If it becomes necessary to run some overtime or three shifts, I suggest the base of the machine be oiled Monday morning soon after starting time, giving the machine time to loosen up a little, and again on Wednesday's second shift.

At the present time I am fixing on a set of machines that have been running for 12 years and oiled in this manner, and they have very little lost motion. It is also a good idea to put a few drops of oil on the teeth of the running gears.

If running the five 16-hour days as mentioned, oil the frame bearings Monday morning. Use oil that is at least twice as heavy as the oil you use on the needles and sinkers. This applies to all other circular knitting machines as well as Banners. Above all, *do not let your machines get thirsty.*

CONTRIBUTOR NO. 6722

Loose Lines in Seamless

EDITOR COTTON:

This is in answer to "CONTRIBUTOR NO. 6585" whose question appeared on page 137 of the November issue of COTTON, and who is having streaks and loose lines in his hosiery. One of his fixers believes the dial jacks affect the hosiery and should be lined up periodically. Another fixer says the dial jacks have nothing to do with the loose lines and that the dial jacks do not get off center.

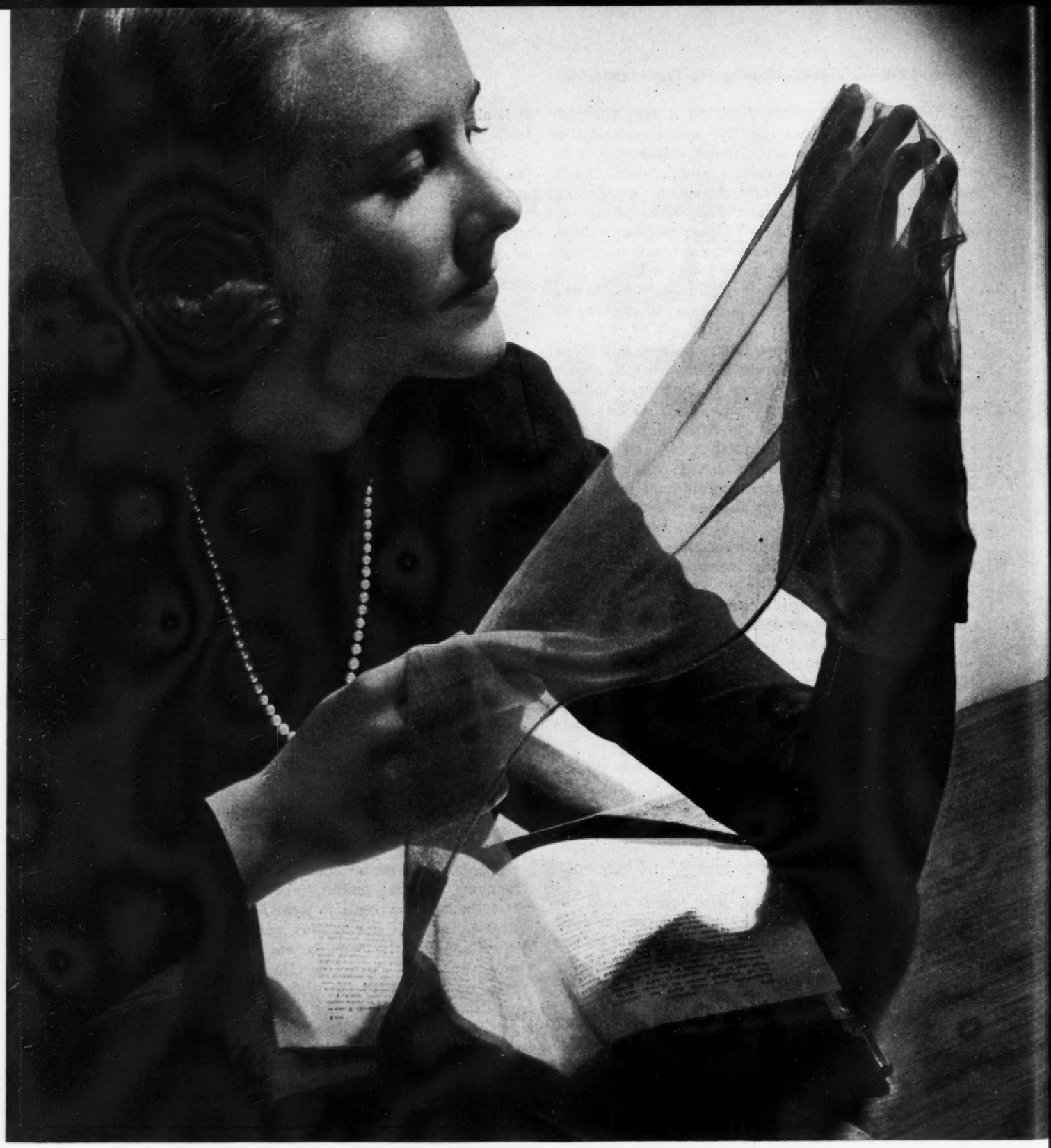
I do not wish to criticize either of the fixers he consulted but I must agree with the one that says transfer dials do not get off center. The dial jacks are pinned to the latch ring and it is pinned to the body of the machine. When a dial appears to be out of center it is the cylinder that is out of line, because the constant pressure of the main driving gear upon the sleeve gear that carries the cylinder causes it to wear in the opposite side, allowing the cylinder to move out from under the dial. The only remedy for this condition is to have an under bearing ring put around the bottom of the cam ring and seated into the sleeve gear to hold both sleeve gear and cylinder in center under the dial. The ring is furnished by Scott & Williams.

If this out-of-center condition does not exist, then I suggest that the inside sinker ring be examined; when the needles begin to wear back into this ring, which is made of brass, they wear different depths determined by the tension on the needle. When these rings wear enough to allow the needle to lean back into the groove the sinkers continually riding the stitches off the needles will cause them to settle into this out-of-line position. This would only apply to a case where the needles are out of line in an in-and-out position. If the needles are out of line sideways, which means leaning to the front or back of the machine circle, then I would say determine which way they lean, behind the transfer jack or forward of it; if they are bent back the indication is too much lost motion in the driving gears or cross bar or possibly the timing screws are not adjusted to balance the dial jack over the center of space between the needles.

CONTRIBUTOR NO. 6594

It is reported that a new quarter-million dollar hosiery mill for Morganton, N. C., is assured.

Pilot Hosiery Mill, Morganton, N. C., has enlarged the finishing room.



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ROYERSFORD NEEDLES

TRENDS and HIGHLIGHTS of the KNIT GOODS MARKETS

Price Reductions Feature in Knit Goods. Manufacturers Operate Slightly More Actively but Spring Buying Relatively Small and Late. Underwear Mills Name Attractive Fall Season Lists.

Philadelphia, February 16, 1938

ALTHOUGH MOST MANUFACTURERS have been able to broaden machine rates compared with January, they remain on greatly curtailed schedules and find buying for the spring season late and small. Price reductions in certain commodities and yarns bringing about declines in several lines of knit goods have failed to stimulate interest because buyers on a dropping market always wait, fearing that the bottom has not yet been struck. With bearishness gaining in the month some feel that we may this month be passing through the lowest point in respect to orders and prices but even they are unwilling to act on this assumption, while others look for new steps at Washington to lead the way out of what may be called a depression instead of a recession unless the trend is shortly reversed. Unbiased observers say knit goods manufacturers have cut prices as much or more than current costs justify in an attempt to attract buying interest. Curtailment among manufacturers will in the near future remedy oversized inventory positions.

Full-Fashioned

Wage negotiations with Philadelphia mills and Reading full-fashioned plants and American Federation of Hosiery Workers have been a factor in retarding spring orders but in the face of this many knitters say they have been able to show a minor upturn in production during the last week. Lower prices on both branded and unbranded goods have not attracted buyers to an important degree and weakness has again been the rule in the cheaper lines while the better lines have held reasonably steady. Unbranded firms have named prices relatively on a basis with cuts announced at the year-end by branded. Whether additional cuts would follow lower wage scales here and at Reading is not known but buyers are counting on this. Lisle full-fashioned to take the place of chiffon silks has been shown but retailers are dubious that important volume will follow in these except for expected gains in sport type cotton full-fashioned. Southern knitters are much more active than Pennsylvania plants so far this year.

Men's Half-Hose

Fancy half-hose, which has been a soft spot in the market, has been showing conservative improvement this month with more interest by chains, jobbers and certain large retailers. Half-hose stocks had been lowered in many cases to a reasonable level at the year-end and since then further progress has been made along these lines. Retailers like to get back to the three pairs for a dollar basis saying that is the bracket where they did best but manufacturers say other costs have offset the lower yarn and raw material costs, making this difficult. Yet leading makers of branded lines announced a return to the 35 cents per pair rate or three pairs for a dollar on men's lower-bracket hose, including Interwoven and Phoenix, which it is felt, meeting retailers' price ideas, will result in a freer movement of such lines than has been seen at the higher retail bracket previously in effect.

Women's Seamless

Price reductions in accordance with cuts in rayon yarns have been completed on most lines of rayon and part-rayon hosiery. Reductions on women's seamless all-rayon averaged about 10 cents per dozen with other numbers off in proportion. Silk seamless has been moving at a fair rate with some retailers doing well in silk chiffons with black heels at 44 cents per pair. Another had silks for four pairs for a dollar. Service weights of Celanese rayon were priced at four pairs for a dollar at one large department store with irregular rayons at 29 cents or six pairs for a dollar.

Anklets

Demand for anklets has been slow to develop this season and jobbers say retailers have not placed their March orders as yet although this time last year most had. They feel the season in these will be fair but come late and in smaller orders at a time than last year. In the case of large chains there are reports some will place fall orders in children's hose late in March. Manufacturers have pointed out to these buyers that when detailed orders are not received until late in May, as is true in some years, it is sometimes impossible to get the orders out in two months, the goods being wanted for early August for pre-school sales. Some sections this winter have done very well with anklets for winter sports.

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. . . all over THIS stocking an evenness of texture . . . leg and foot matching perfectly because made with one continuous knitting operation on one machine.

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these lines being used for ice-skating and skiing. Anklets showed nice gains in 1937 over the previous year and when business for spring and fall opens knitters look for a satisfactory volume in 1938.

Underwear

By effecting price reductions underwear manufacturers are hoping to stimulate buying for the fall season despite a relatively unfavorable inventory situation at the beginning of the year. Several manufacturers early in February announced price reductions as high as 10 per cent on some numbers. The reductions will narrow mill margins, since higher taxes and wage rates offset in large measure current lower yarn and cotton costs. However, the new prices will enable retailers to mark these lines at new figures which in the past have resulted in a large volume of business. Prices named on such lines as men's cotton ribbed numbers have been very well received by large buyers and it is felt a sound trading level has been established. In the branded Hanes line men's 12-pound cotton ribbed suits are down 55 cents a dozen from a year ago while boys' branded suits are down 37½ cents for cotton numbers. Large chains have stated they would begin buying early in March in many underwear numbers for next fall. While spring numbers are sluggish there is no disposition among sellers to weaken prices, rather they are steady on such numbers due to the firmness in the raw market since the new farm bill was passed. Due to severe curtailment among knitters there are possibilities that deliveries to jobbers and retailers from early March on may be slow on spring numbers.

◆

FORECAST

Opinion offered by "COTTON'S" market correspondent

Lateness of Demand for Spring Merchandise Causes More Uncertainty. Mill Activity Fails to Show Improvement and Further Price Adjustments Stimulate Little Interest. Cotton Steady but Additional Easiness in Wool. Rayon Yarn Cuts Bring Some Improvement in Demand.

Philadelphia, February 16, 1938.

Manufacturers of textiles, while feeling this industry will be among the first to show improvement, have postponed their predictions as to when this will occur. Some that held betterment was due before the middle of the year now say the spring will show only unimportant changes and now are looking ahead to the fall season as the earliest in which much can be expected for them. Retail sales while off compared with a year ago in many sections are not off nearly as much as mill production so that continuous reduction in inventories is being achieved by the industry, always a healthy trend and sooner or later an effective remedy. Confidence to operate ahead has not improved so far this year but early in February was lower than a month previous. With the United States failing to come out of the recession quickly some feel we may help in bringing about a similar recession abroad which would prolong the downturn in business.

With prices of textile products generally easy after such a long and drastic decline, buyers of all types are lacking in confidence and fear further cuts which is making the type of buying current only for fill-in amounts and mainly from stock or very quick shipment from the mills. The cuts in full-fashioned and rayon hosiery this year have not expanded volume in the goods end yet.

The plan to negotiate a trade treaty with Great Britain has had a bearish influence on manufacturers of wool lines who fear an influx of foreign goods. This has caused additional uncertainty in this trade. The boycott movement in silk has made little gains in actual selling of full-fashioned hosiery yet and retailers are not very enthusiastic about it.

With the Government planning additional relief expenditures and also for armament purposes the balanced Federal budget has been delayed again which is another factor taken into consideration by business. These factors have tended to weaken business confidence as compared with a month back and improvement in demand, many feel, is not going to come as soon as we thought at the turn of the year. Yet most agree that mill activity is around its low point now and some minor expansion will come in the spring with much more to be seen along those lines in the latter part of the year.

While admitting outside influences such as new inflationary steps by the administration could quickly change the picture, most mill men say a very cautious policy will be followed for the next few months and also that they do not look for a big buying movement in the near future. They do not expect lower prices in textile fibers but neither do they fear any upturn of consequence just yet although cotton has been acting well recently. Silk while low is not being bought ahead yet, many feeling still lower prices may be seen. Wool has been easy and buyers are holding off. Rayon prices are believed at bottom unless wage cuts that are not in prospect change the picture.

In the goods end some hardening has been seen in certain cotton lines but aside from this softness is apparent and prevents development of buyer confidence. New developments at Washington may brighten the spring outlook and textile manufacturers now need confidence-restoring measures.

Full-Fashioned Mills Seek Wage Cuts

Philadelphia full-fashioned hosiery manufacturers, who are members of the Full-Fashioned Hosiery Manufacturers of America, Inc., having a national contract with the American Federation of Hosiery Workers late last month submitted demands for wage reductions. The union manufacturers are demanding revisions identical with those being asked by those in the Reading district. These include the elimination of extras for ringless, thread counts, silk welt, French heel, and picots, the elimination of many lace tackle and other extras, the 11.11 per cent for shift operation of footers and reductions in basic rates in all departments except a few finishing operations.

The reduction demanded could range from 20 to 50 per cent in several operations and total up to from 14 cents per dozen labor cost on the low-end merchandise to 98 cents on styled goods, according to the union. Upon receipt of these demands from the manufacturers, a wage tribunal was set up according to the terms of the national contract between these manufacturers and the union, consisting of one representative from the mill group, George Lang, president of the association, Isadore Katz, representing the union, and these two elected the third member, Dr. William M. Leiserson, member of the National Mediation Board. Arbitration hearings before this board began January 31 in Washington, when arguments and briefs were presented. Two briefs were presented by manufacturers, one of which was drafted by the association, while the other was prepared and presented by F. D. MacIver of the Phoenix Hosiery Company, also representing the association. Dr. George W. Taylor, impartial chairman of the National Labor Agreement was requested to assist the board in factual matters.

A second hearing in the proceedings was ordered by Dr. Leiserson February 7. He stated that he desired additional information and facts and it was announced that a decision would be handed down at an early date. The hosiery union had previously termed the wage reduction demands as "ri-

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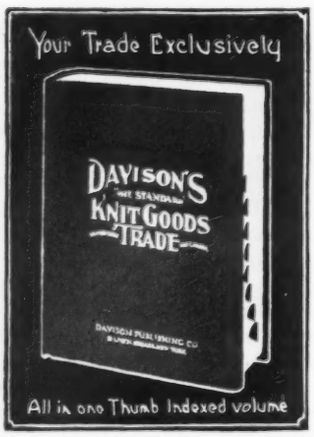

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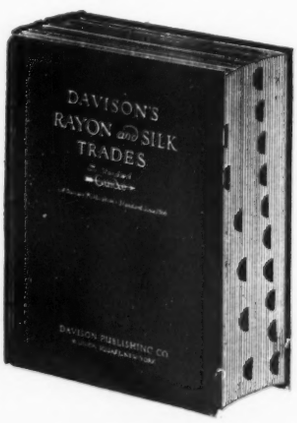

Covers both Rayon and Silk Industries.

diculous and unrealistic" The union said that there had been no important change in the factors entering into the cost of manufacturing mentioned in Section E of their contract and it was also pointed out by union officials that any wage cuts made here would result in corresponding reductions in other sections of the country so that the competitive position of the Philadelphia group would be unchanged. They also asserted this association should have awaited the outcome of the negotiations in progress with the Reading group.

◆

A. H. Williams Named Reading Arbitrator

Dr. A. H. Williams, professor of industry, University of Pennsylvania, was selected as the arbitrator in the wage dispute between the Keystone Hosiery Manufacturers Association of Reading, and the American Federation of Hosiery Workers. A hearing was held February 12 in Reading and was continued on February 16. In this case the union is asking for an increase in basic rates in the Reading area of from 6 to 9 per cent in order to make the Reading rates uniform with the National Labor Agreement. The manufacturers' group is asking for a reduction in based rates and extras ranging from 15 to 50 per cent, according to the union. The wage clause in this agreement does not call for a tribunal but calls for a single arbitrator. George W. Balmer, attorney for the manufacturers' group, acted as the spokesman for the 15 Berks County manufacturers represented in this case. Although there was some discussion as to the advisability of combining this arbitration with those of the Philadelphia group, this proposal was definitely vetoed. The Keystone group was represented by John H. Vogt of Nolde & Horst, Hunter Biehl of Busy Bee, Charles H. Haeusler of Fedden Brothers, George Meinig, of Meinig Bros. and Thomas Gantz of Temple Hosiery Mills.

◆

Union F-F Mills Say Capital in Danger

The capital of union full-fashioned hosiery mills is being dissipated by high wages and there is a grave question how long this trend can continue. This assertion was contained in the brief filed by the Full-Fashioned Hosiery Manufacturers of America at the secret arbitration hearing with the hosiery union at Washington. The union mill representatives state in the brief that five of the major firms had a net worth of $41,600,000 on January 1, 1931. But by January 1, 1937, it declares, "each and every one of the group have lost in net worth to a new total of $21,000,000 or a reduction of 49 per cent. It concluded that labor costs in the member mills must be substantially reduced, not as a temporary measure but as a long-range economic adjustment to insure future continuity of employment for union workers."

The manufacturers suggested that cuts be made to check the rapid movement of business from the member mills to low-wage areas; to develop and attract the capital necessary for the conduct of their business, for the replacement of equipment and modernization of plants; to enable these manufacturers to sell profitably in those price brackets at which the largest and ever increasing volume of sales are made and to stabilize employment and the annual earnings of hosiery workers. "Only by a complete reversal of policy on the part of the American Federation of Hosiery Workers, a departure from the policy of exacting the highest possible rates, the largest possible extras for each task at every opportunity, to a broad statesman-like policy of facing the situation realistically, only by co-operation with management on fair rates and fighting rates can the situation be met and can the membership in the union best be served," the manufacturers' brief declared.

◆

Wage Cuts Imperative

Members of the Keystone Hosiery Manufacturers, Inc., assert in arbitration proceedings between them and the union that if they are to survive, they must obtain a reduction in costs, move their plants to communities where costs are lower, or liquidate. In a brief submitted by the association in support of their request that the union agree to a wage reduction, it was declared that twelve of the mills in the Keystone group suffered a drop of $659,729 in their net worth within the last two years, adding "at least four mills at present are considering offers from the South". In 1937 the total net sales of the 15 mills amounted to $13,429,279 and the loss after depreciation was $419,416. Depreciation in 1937 was $536,031, which made the profit before depreciation only $116,615. Continuation of such a situation is impossible, the brief said.

Of production, the brief said, the increase in the South in 1937 was 24.78 per cent, adding "in the Reading district the decrease in production was 267,239 dozen pairs or 4.53 per cent. In the Keystone group the decrease of production was 249,837 dozen pairs or 13.32 per cent." The manufacturers base their case for the necessity of a wage reduction on the following: Movement of production to the South; movement of machinery and mills to the South; excess wages over the usual wage of similar skilled workers; increase in hourly and real wages over 1929 and finally lower wages paid in the South and in other union mills.

◆

Hosiery Merchandising Division Created

Formation of a merchandising division by hosiery selling agents and sales executives of hosiery mills was arranged at a meeting in New York late last month. Under the direction of the National Association of Hosiery Manufacturers the division will have as its objectives the study of conditions and practices in the field and the improvement both wherever possible. A close link to wholesalers and retailers is also planned. The concensus being that the buyers' support is requisite to the improvement of conditions under which hosiery is sold. The selling agents now affiliated with the association joined with the mill men in setting up a steering committee and three sub-groups. Among those at the meeting were William H. Gosch, president and Earl Constantine, managing director of the manufacturers' association.

◆

Underwear Mills Need Originality

Underwear prices need the prop of originality. This is reiterated in a publication of the Underwear Institute. It points out that underwear prices not only declined more drastically during the depression than those for all commodities, all textile products or even all knit goods, but they are unique in recording a net loss in average value per unit from 1933 through 1936. It points out it is probable this is evidence of too little sales promotion within the industry, too little investigation for new and improved products, too little pride in the quality and distribution of mill brands. Another comment is "our advice from the trade today is that more and more the buyers of large retail stores are being instructed to buy directly from the mills. Evidence of that situation is contained in the Institute survey showing the substantial volume of sales direct to

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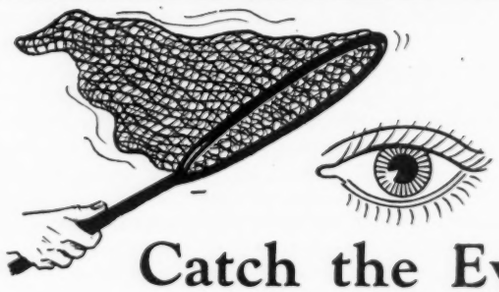

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department and other unit stores as well as chain retailers. Whereas two-thirds of the mills handled their own products for sale back in 1929, the study shows that three-quarters have of late been getting along without the aid of agents.

◆

Rome Hosiery Gets Rubber Top Patent

The Rome Hosiery Mills, Rome, Ga., announced through its recently appointed sales agent, P. T. Cuthbert & Co., Inc., that it has been granted a fabric patent, No. 2,105,907 on its new rubber top for men's, women's and misses' hose. The new top, it is claimed, is radically different from any now on the market, combining the best features of the transferred rib elastic top and the automatic top. This new top is of two-feed construction with the elastic laid in between courses and floated into an accordion stitch. It is claimed the new method of elastic yarn control gives the top a sturdier body, a finer finish and flexibility.

◆

Boycott Opposed by Durene Association

Strong opposition to the boycott movement, directed against silk hosiery, was expressed in a statement issued by Dean Hill, president of the Durene Association of America, which organization is promoting lisle full-fashioned stockings in novelty pattern effects for wear with sports costumes, tweeds and tailored costumes. He pointed out that the Durene Association started styling novelty lisle numbers in March of last year before Japan invaded China and that it had at no time supported the silk stocking boycott and would not participate in the movement in any manner in the future. The Durene Association, Mr. Hill said, disclaims any responsibility for the plain chiffon lisles offered by hosiery mills. The Association does not believe there is a future for plain chiffon lisles and is confining its promotion efforts to the patterned type. The latter, Mr. Hill said, will in his opinion stimulate the sale of sheer silk hosiery and enable manufacturers to combat the bare-leg fad. He reported an increase in shipments of Durene yarn for use in full-fashioned hosiery. It is a little too early, he said, to make definite statements but added the response to his association's promotion work along this line pointed to a decided increase in the use of lisle stockings.

Anklet Production Shows Largest Gain for 1937

Notwithstanding the severe decline in new business and shipments in December, anklets registered a gain in shipments of 15.3 per cent in 1937 as compared with the previous year, which was the largest gain of any branch of the hosiery industry. Production of this type goods jumped from 17,615,215 dozen pairs in 1936 to 20,312,379 in 1937, with the next best showing made in the women's full-fashioned end, where a percentage gain of 6.1 per cent was registered. Production of women's full-fashioned in 1937 was 39,678,494 compared with 37,400,782 in 1936. Losses in shipments were registered in men's half-hose, excluding wool, children's and infants' hosiery, cotton bundle goods, ribbed goods and woolen goods. Gains were registered in addition to anklets and women's full-fashioned in women's seamless. A December decline of 17.8 per cent under shipments of the last 1936 months reduced the net gain in total 1937 hosiery shipments over the previous year to only 2.7 per cent, according to data compiled by the National Association of Hosiery Manufacturers. Employment fell to 137,191 in December as compared with 146,598 workers in December 1936. Stocks of all types of hosiery were 7.7 per cent larger at the end of 1937 than a year previous. Women's full-fashioned stocks rose 20.7 per cent over the previous year-end.

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Gosch Terms Silk Boycott Unsound and Unpatriotic

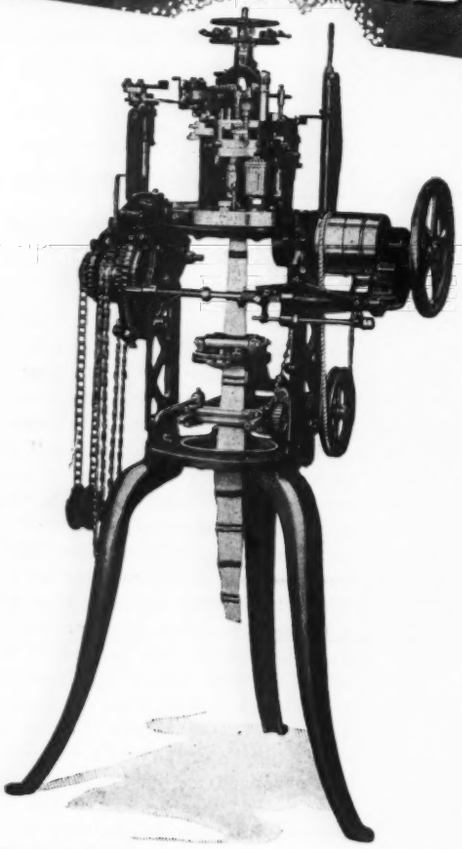
William H. Gosch of the Nolde & Horst Company, Reading, Pa., and president of the National Association of Hosiery Manufacturers, speaking at a dinner held February 2 under the auspices of Local Union No. 10, American Federation of Hosiery Workers, called the silk boycott and its attendant propaganda "the most uncalled, most unsound, most unfair and most unpatriotic movement ever directed against a truly American industry". He said he believed he was expressing the views of workers and management of the many mills affected when he spoke. Mr. Gosch ascribed the start of the movement to some apparently well-meaning people who got the idea that Japan's advances into China could be stopped by creating sufficient feeling in this country to make people want to do without goods of Japanese origin. He pointed out that the two outstanding labor organizations in this country have adopted resolutions favoring the boycott of goods of Japanese manufacture but wisely and advisedly excluded raw materials because they understood what was involved. In commenting on the possibility of using substitutes such as cotton or rayon yarns, he said the leaders on their respective industries must fully realize that while a temporary advantage might be gained, "it is not worth the price of the painful readjustment when silk again will come into its own." Mr. Gosch said there was a place for the type of cotton hose in fancy or patterned constructions.

◆

Pickets Prevent Sale of Brownhill & Kramer Plant

Application was made to Court of Common Pleas No. 1 February 7 on behalf of Brownhill & Kramer, full-fashioned hosiery manufacturers, for an injunction to restrain former employees from picketing the mill or interfering in any way with an auction sale of the machinery and other equipment scheduled for February 16. The petition set forth that since 1930 the business has been conducted at a continual loss except in 1934; that the total losses suffered have amounted to $448,763, which less profits of $6,810 made in 1934, left a net loss during this period of $441,953. The company shut down last August in the midst of a sit-down strike and about a month ago arranged for public auction of its machinery. On the day of the sale a number of persons, claimed to have been former employees, attended the sale and created so much disorder by pounding on the machines that bids from legitimate bidders were drowned out and finally the auctioneer was forced to call the sale off. Judge Joseph L. Kun, sharply reproved the employees for their activities. "When you have labor disputes you can enforce your rights before various boards that have been established and enforced. Enforce your rights but do it in an orderly way," he said. The hosiery union has claimed this concern has a branch plant in the northwestern part of Pennsylvania, where it says the firm has gone to escape union organization. The second auction was held with many pickets present and some wondered if they would be able to move the purchased machinery and equipment from the plant.

Brinton Ribbers



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Berkshire Hearing Before NLRB Finally Ends

The protracted hearings by the National Labor Relations Board into charges of "unfair labor practices" against the Berkshire Knitting Mills terminated after many weeks of testimony. More than 5,000 pages of testimony contained over 1,250,000 words and over 200 exhibits. The exhibits include photographs taken at the strike in 1936. Upon the completion of testimony, Leo J. Kriz, who presided at the hearing, will submit an immediate report to the NLRB. The board will review this report and then hand down a ruling but no decision is expected for several weeks. In the event of an adverse ruling by the NLRB it is predicted that Berkshire will carry its fight to the United States Circuit Court of Appeals. Berkshire attorneys have carefully built up the record with this in mind. The Labor Board opened its case November 29, 1937, presenting evidence against Berkshire for 25 days. Berkshire began defense of its policies on January 19.

◆

Knitting Mill Sale Arouses Sentiment

Aroused public sentiment over the future of the knit goods trade in Amsterdam, N. Y., reached a point early this month where the mayor, after holding a community meeting on this subject, appointed a committee of 18 prominent citizens to evolve a plan whereby more such firms could be induced to locate there. Sentiment in Amsterdam became stirred up over the reports that Yund, Kennedy & Yund Knitting Mills might be sold at auction, similar to the one in which the Blood Knitting Co. was disposed of recently.

◆

Asheboro Appoints New Sales Agent

The Asheboro (N. C.) Hosiery Mills, Inc., appointed the recently formed Arthur Hafela Co., New York, as exclusive selling agents for their products, women's seamless and full-fashioned hosiery. The Asheboro Mill, second largest women's seamless hosiery plant in the country, with an equipment of approximately 1,000 seamless machines, has closed its New York sales office. The Hafela company, formed by Arthur T. Hafela, upon his resignation from Hanes Associated Mills, Inc., New York, is also sales representative for the Oscar Nebel Co., Inc., with full-fashioned hosiery plants at Hatboro, Pa., Winchester and Staunton, Va.

◆

Pact with Japan On Hosiery Observed

Reporting hosiery exports from Japan to this country of only 1,446,052 dozen last year against the quota of 1,500,000 dozen, the National Association of Hosiery Manufacturers says that the terms of the pact have been "scrupulously observed by Japanese interests". The quota agreement was finally concluded on April 16, 1937, after some months of negotiation between the National Association here and the Japan Knitted Goods Exporters Association. The terms provided that exports of cotton, rayon or cotton and rayon hosiery from Japan to this country should be limited to an annual amount of 1,500,000 dozen. The quota agreement provides that if the exports from Japan to this country during 1937 shall be less than the annual quota, the shortage shall be credited to the quota of 1938 to an amount not exceeding 150,000 dozen. The unused part of the 1937 quota of 53,948 dozen therefore will be added to the 1938 quota, making that total 1,553,948 dozen.

◆

Mfgrs. Assn. Finds Slight Silk Boycott in Hosiery

The National Association of Hosiery Manufacturers reported that little hosiery equipment has been shifted from silk to lisle or rayon as result of the movement to boycott silk stockings because of the connection of the raw silk with Japan. The survey showed only 22 companies offering lisle full-fashioned hosiery, 14 offering ladies' lisle and rayon seamless hosiery and one company offering both seamless and full-fashioned lisles and rayons. The survey said: "Normally, 75 per cent of all ladies' hosiery consumed is full-fashioned and 25 per cent is seamless. The full-fashioned production is almost 100 per cent silk. Also, of the total ladies' hosiery consumed, 85 per cent is silk and 15 per cent is rayon and cotton. The wool consumption is negligible. Obviously, if the boycott against the American silk ladies' stockings has produced any major effect, it would be in the nature of a conversion of a substantial number of full-fashioned machines from silk to either lisle, cotton or rayon." It also added such conversion has not taken place to any significant degree. The survey also stated the aggregate number of machines in operation early in January on lisles and rayons was 96 which is slightly over 1 per cent of the total machines covered by the survey.

◆

Wilson Is GE Vice-President, Crocker Assistant to Wilson

Charles E. Wilson, who was elected executive vice-president of the General Electric Company, has as his assistant, Stuart M. Crocker, vice-president of the International General Electric Company since 1930. Mr. Crocker is a Harvard graduate. In 1921 he was assistant to Owen D. Young, chairman of the boards of both the Radio Corporation of America, and the General Electric Company. In 1927 Mr. Crocker was made vice-president and treasurer of the United Electric Securities Company, a subsidiary of GE.

◆

Rayon Merchandising Forum

Approximately one thousand merchandise managers, buyers, and store executives, as well as representatives of textile manufacturers and of the rayon industry were present at the Rayon Merchandising Forum, held at the Waldorf-Astoria, New York City, January 28, 29, and 31. Among the speakers were Gordon Hyde, Stanley B. Hunt, W. F. Monroe, Joseph Platt, and Dale Carnegie.

◆

Goodyear Holds Sales Meeting

Sales plans for the coming year and a thorough discussion of several new and improved products to be introduced by the Mechanical Rubber Goods Division of the Goodyear Tire and Rubber Company were the subjects of a three-day sales meeting held at the Park Central Hotel on February 3-5. The meeting was in charge of W. C. Winings and was attended by eastern district managers and their sales force.

◆

New Company Takes Over Bendix Industrial Fan Division

South Bend Air Products, Inc., South Bend, Ind., was recently organized to purchase and continue the ventilating equipment business formerly conducted by the Industrial Fan Division of the Bendix Products Corporation. Marshall A. Smith, Jr., formerly in charge of sales and engineering of Bendix, is president and general manager of the new company. The complete line of fans and other equipment is being continued under the trade names "Dynaflow" and "Aerospot".

TRENDS---THE YARN MARKETS

Cotton Yarns Near 1937 Lows Although Raw Material Hardens. Easiness in Worsted Yarns Continues. Rayon Demand Helped by Price Cuts. Silk Buying Waits on Full-Fashioned Improvement.

Philadelphia, February 16, 1938

THE IMPROVEMENT in the cotton and worsted yarn markets of January failed to carry through and soft prices in each have caused buyers to curtail interest but in rayon the severe price cuts of recent weeks bringing these yarns to a level only a few cents above their all-time lows have stimulated slightly better demand which is expected to broaden further as mills go into fall dress goods lines and spring hosiery numbers more energetically. In silk, buyers are waitin gon larger goods orders but they fear effects of the Japanese campaign in China which they feel may have repercussions in silk prices. Buying of this fiber has continued on a hand-to-mouth basis but a shade more active than in January with full-fashioned mills early in the present month operating somewhat more actively.

Cotton Yarns

From a sellers' standpoint ground has been lost during the last four weeks in that prices have eased in larger transactions while the raw market held steady and in fact some hardness upon discussion in Congress relative to the new farm act and also on reports of planting of fewer acres than last year, developed.

Manufacturers have been buying yarns in very small quantities because they have been unable to sell their own goods in any volume and also because of weakness in yarn prices. Many manufacturers could buy more than they have been doing the last month but after seeing prices weaken during a period in which the raw market has been gaining some strength, they have been reluctant to do so, fearing additional inventory losses. During the last month raw cotton has advanced somewhat but this trend has not been apparent in the yarn end. Manufacturers say that at present they are able to buy yarns, particularly in the carded qualities, at the lowest levels reached in 1937, when raw cotton was approximately a cent lower than it is at present. While quotations show no decided change over the month, prices in actual sales are lower, manufacturers reporting purchases of 20s two-ply at 20 cents for a good quality yarn, which is very close to the low point of last year, touched in November.

Producers of combed yarns have been curtailing production more in line with current orders and shipments than have their carded competitors so that prices of combed yarn have been holding slightly firmer than carded. Yet in 30s single, prices of combed and carded in the better grades are closer than normally seen, the difference between the two now being only 2 to 3 cents. This is having the effect of creating a relatively better demand for combed, particularly in the underwear field where knitters say they are buying the combed in order to put such labels on their garments at so little extra cost.

The new cotton lisle full-fashioned stockings being offered by many full-fashioned hosiery concerns have already caused a better interest in fine mercerized combed yarns and considerably more poundage is expected later in the year when this type hosiery is selling more freely over retail counters. Spinners say counts from 120s two-ply and finer have been used in this type hosiery, which is being made to retail from 79 cents to $1.15. If this hosiery meets even a fair response from consumers, the yarns required would keep a considerable portion of the combed section busy because of the slowness in producing such numbers.

Spinners' margins are extremely small at present and the complaint is general that carded yarn prices are approximately 2 cents under actual cost. For this reason spinners are not anxious to sell ahead, believing that it is unwise to commit themselves far ahead at these unprofitable levels but at the same time, some of them have been weakening the sales market by trying to get some business on which to run immediately at very low prices.

Worsted Yarns

Demand for worsted yarns has been quiet and prices easy during the month. The situation which had been previously quiet, has been made worse by fears in the trade of the possible effects of the proposed British trade treaty as it affects woolen products. Spinners feel that competition will be made keener by the lower duties on such imports and this factor has also caused a contraction in their new business over the last few weeks. The trade is working on a severe hand-to-mouth buying policy, fearing that the bottom has not yet been reached.

There has been a decline of approximately 5 cents a pound in the wool top futures market over the past month and many counts of yarn have declined to this extent. For example, men's wear mixtures which were quoted at $1.50 a month ago have been selling at $1.45, while 2-50s that sold at $1.57 a month ago have been quoted at $1.52 during the last week. In knitting yarns, spinners are generally quoting from 2½ to 5 cents lower than a month ago, with reports that in some cases even lower prices have been named. Outerwear manufacturers have had little business for the spring season even though they have produced a wider line of samples in their attempt to stimulate business, than for many years. Some of these bathing-suit knitters are experiencing a poor season due to the popularity of the woven suits and also because of the wider use of lastex, an elastic yarn covered with rayon being used in both men's and women's suits.

Rayon

Rayon yarns have experienced one of the most drastic price revisions since the first of the year ever seen in this trade. During this time several different price lists have been issued, each one being lower than the previous one, so that at present some sizes like 150 denier, 24 filament, are selling at 9 cents a pound under the level of late December. Prices now are within a few cents of the all-time low reached about five years ago. There has been a conservative improvement in demand but consumption is still lagging considerably under what is normal for this time of the year. January rayon yarn shipments were well ahead of December notwithstanding the price cuts during the first months of the year. If the present improvement in rayon yarn bookings is maintained, deliveries this month will again equal production. Curtailment of viscose production, in some instances, is now about 40 per cent with one or two isolated instances of ever greater restriction. Rayon yarn stocks in the hands of producers are at an all-time high but it is felt this month may see a change and possibly a reduction. Acetate rayon yarn business is somewhat more active than that of viscose and sales of rayon staple fiber are declared to be in the best position of all.

Silk

There has been little change in silk prices over the last month and the market has presented a somewhat steady tone. Hosiery manufacturers are showing slightly more interest but are not buying in large quantities. This is reflected in a somewhat better takings here in America. Most in the trade were looking for between 25,000 and 30,000 bales but the actual showing of 30,715 bales was construed as mildly bullish, even though it showed a heavy decrease from the 44,198 bales taken in January of last year. Sentiment in the trade is not bullish, largely on account of the smaller takings by America over the first seven months of the season.

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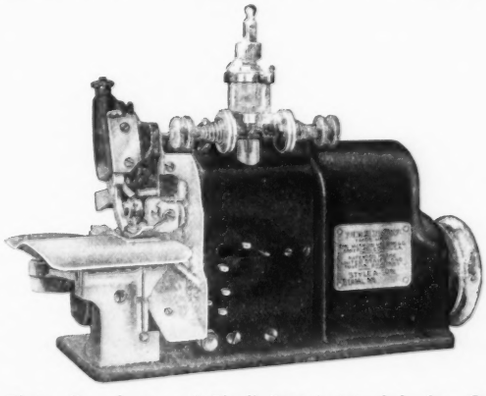

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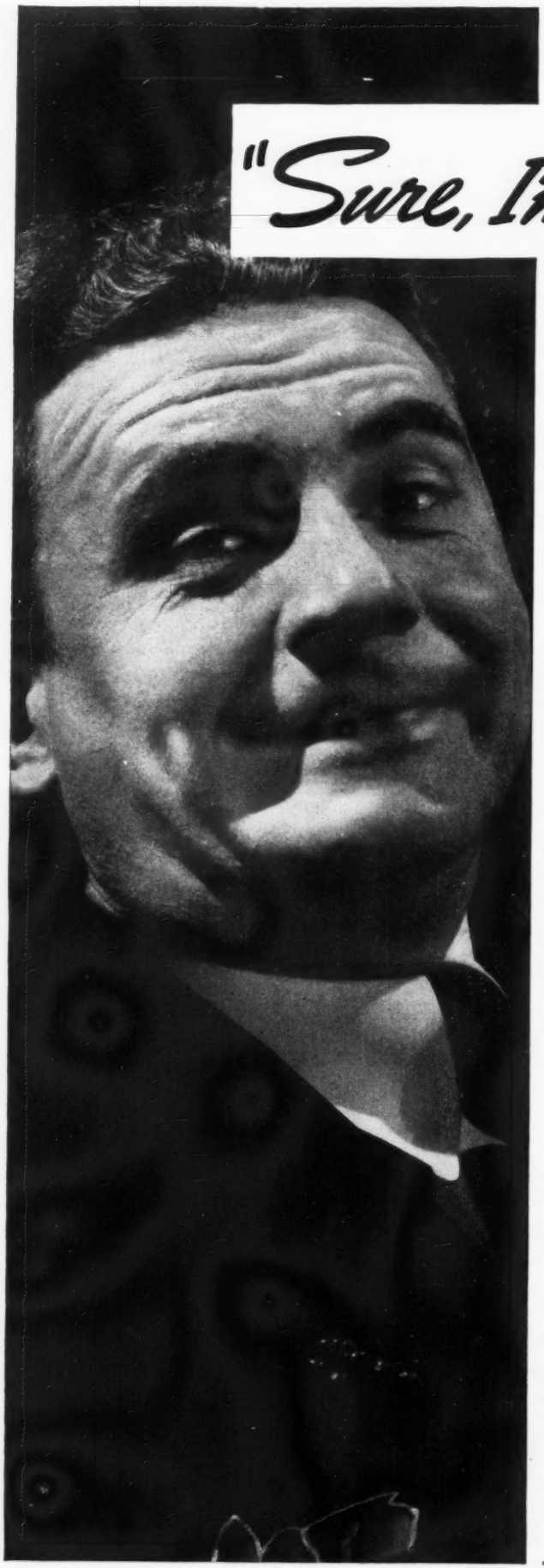

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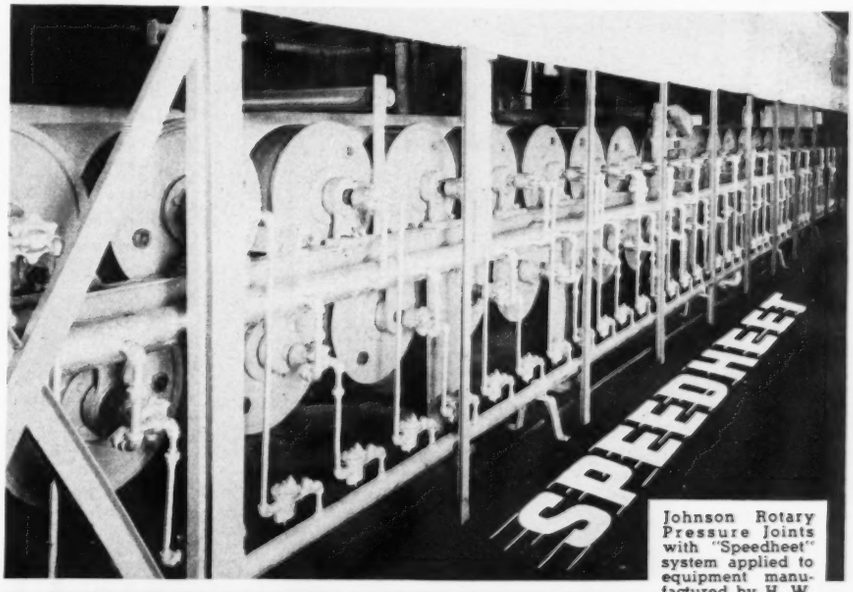

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Atlanta, Ga.--Est. 1896--Dallas, Texas

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AFTER all is said and done, the success of a kier boil depends upon something besides a pump, a kier and temperature. That something must be in the kier liquor – a penetrating, carrying, adsorbing, cleansing power in the solution and a part of it.

What is that something?

It is a scientific combination of alkaline and colloidal properties found only in ESKIER.

ESKIER

When present in the kier liquor, ESKIER speeds up circulation throughout the cloth, flushes cotton impurities away, leaves the goods perfectly bottomed. We'll gladly recommend formulas for your conditions.

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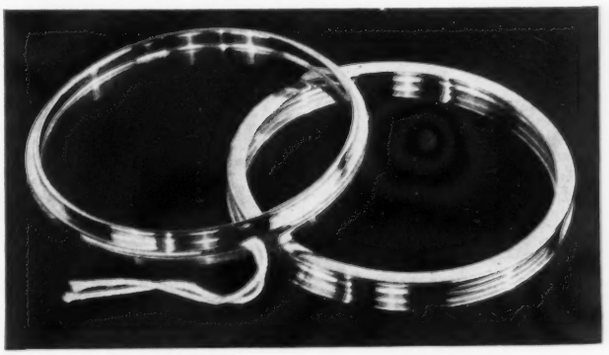

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Makers of Spinning and Twister Rings since 1873

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Specialists in Textile Costs Over 25 Years

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TEXTILE MACHINERY PARTS

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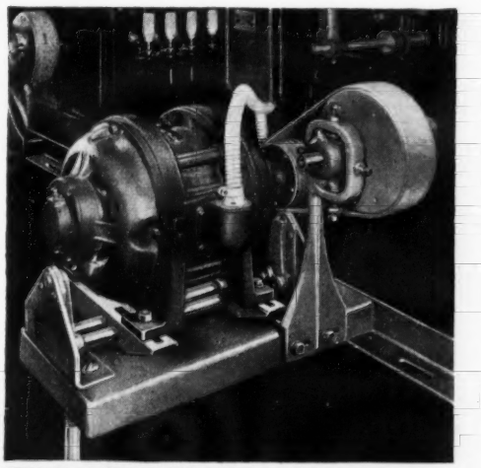

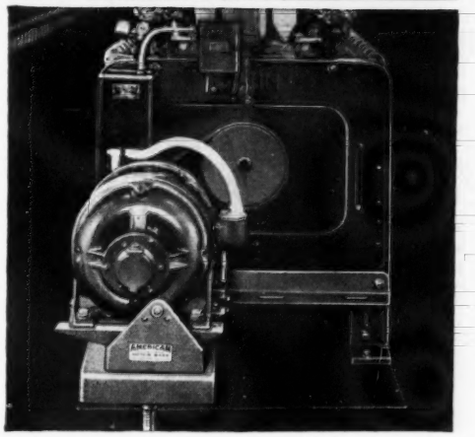

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Let Us Make a Sample Installation of American Tension Control Motor Bases Without Cost . . . Without Obligation

There are no strings attached to this offer. All you need do is select the drive . . . give us the specifications, and our engineer in your territory will install the correct American Tension Control Motor Base.

From there on we'll let the "American" prove that it reduces *average* belt tension by mechanically matching belt tension to load requirements . . . that it reduces power consumption, and that it lengthens belt and bearing life.

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Tension Control
MOTOR BASE

RESTORES NEW LIFE TO OLD MACHINERY

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Try a MOCCASIN Bushing on your most troublesome bearing. Write to MOCCASIN BUSHING CO., CHATTANOOGA, TENN.

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Precision is today's watch word in the textile industry. That is why our aprons are gauge-tested to within 5/1000 of an inch—individual testing which insures uniformity that can be depended upon.

Lower Price
Plus
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Standard size aprons carried in stock, also any size or thickness of aprons can be made to specification or sample on short notice.

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ALL TYPES OF SULPHONATED OILS

WOOL SCOURING OILS—BOIL OFF OILS

WATER-SHIELD (HYDROXY K-7-H)

One Bath Waterproof
Easily dispersed in the bath.
Can be run at room temperature.

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Used in place of Sulfonated Olive with better results and a saving.

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for PRINTING MACHINES
CLEARER, ROLLER and
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For Best results in Sanforizing use

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"Smoother than Grease" Since 1890

20 years without a drink—

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Wayne Junction, Philadelphia, Pa.

UNCONDITIONAL GUARANTEE
If this Housing ever Breaks or Distorts we will replace it Free.
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Look! a new RIDGID

Guaranteed Stronger and Safer than Ever!

Here's a tool for you expert pipe wrench users who can't be fooled by shiny metal and ordinary guarantees — the new all-alloy RIDGID with new design stronger housing and I-beam handle that adds still more strength to the famous unconditional guarantee.

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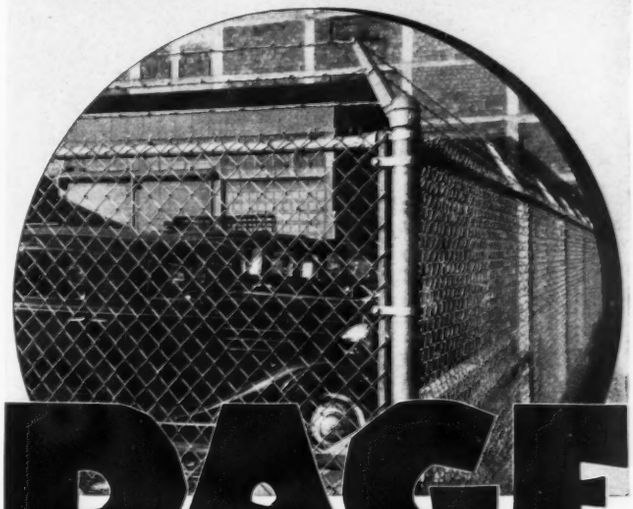
CAUTION

CHOOSE THE RIGHT *METAL* WHEN YOU CHOOSE YOUR FENCE



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Be warned: No one fence metal is resistant to all the destructive air conditions encountered in various localities. Such conditions include salt spray, alkali, acid or chemical fumes—often carried long distances in the air from neighboring oceans, mineral soils, chemical plants or factories.

5 SUPERIOR FENCE METALS MEET ALL ATMOSPHERIC CONDITIONS

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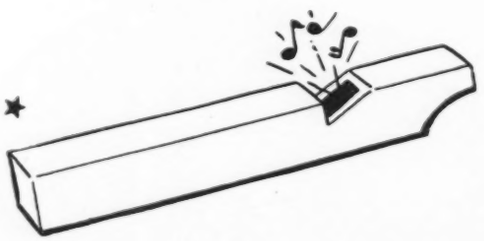


Many guests remark about the unusual cleanliness of Hotel McAlpin. The beautiful new rooms, recently completed, deserve to retain their immaculate charm and comfort. And throughout, the entire hotel is "spic and span". Kitchens are spotless, public rooms, guest rooms, even corridors are thoroughly groomed every day. Such care is just another item in the policy of the McAlpin management . . . and another reason why so many people prefer this fine New York Hotel.

JOHN J. WOELFLE, Mgr.

★WHISTLE

HOTEL McALPIN

"The Center of Convenience"

BROADWAY AT 34th STREET, NEW YORK

ROOMS WITH BATH FROM

$2.50 Single $4.00 Double $4.50

DINKLER HOTELS

. . give *good* service as a matter of course; they are popular because of their *friendly* service, which combine to make *better* service . . .

You will enjoy living in Dinkler operated hotel

★ The ANSLEY ATLANTA
★ The O. HENRY GREENSBORO
★ The SAVANNAH SAVANNAH
★ *The TUTWILER BIRMINGHAM

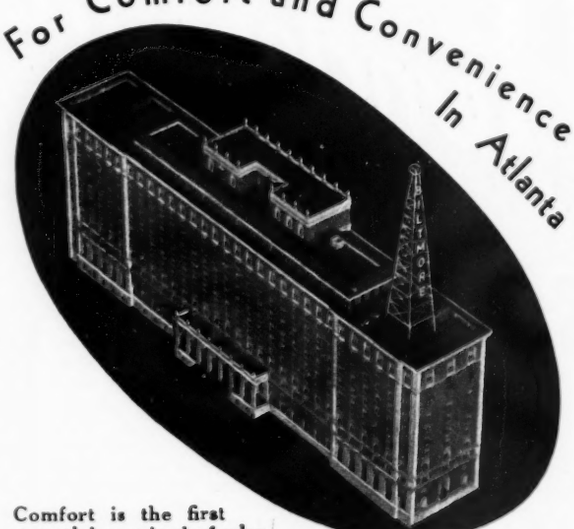
* *Air conditioned bed rooms!*

MONTGOMERY The JEFFERSON DAVIS ★
NEW ORLEANS The ST. CHARLES ★
NASHVILLE * The ANDREW JACKSON ★

**Air conditioned bed rooms!*

DINKLER HOTELS CO. INC.
Carling Dinkler, Pres. and General Manager
OPERATING 3000 ROOMS IN SOUTHERN HOTELS

For Comfort and Convenience In Atlanta



Comfort is the first essential required of a hotel—comfort in its accommodations and public rooms . . . so well has the Biltmore succeeded in pleasing its guests in this essential that it has become known as the "Most Looked-up-to Address in Atlanta."

RATES From $3

ATLANTA BILTMORE

The Most Looked-up-to Address in ATLANTA

PADLOCKED FOR SERVICE

The right to serve people in any capacity carries with it certain obligations.

In the manufacture of *ring travelers* it must be a *precision operation* to secure the demanded quality and uniformity to meet the particular ring traveler requirements.

THE U. S. RING TRAVELER COMPANY obligates itself to see that you get this quality and uniformity by securely sealing all its containers.

Order Now! Samples Upon Request.

THE BOWEN SPECIAL TEMPER
ROUND AND SQUARE POINT
FLAT, OVAL AND ROUND WIRE
THE BOWEN VERTICAL STEEL
THE BOWEN VERTICAL BRONZE
THE BOWEN PATENTED BEVEL EDGE
THE BOWEN PATENTED VERTICAL OFFSET
THE BOWEN PATENTED NE-BOW VERTICAL

U. S. Ring Traveler Co.

Providence, R. I. Greenville, S. C.

AMOS M. BOWEN, PRES. *and* TREAS.

Southern Sales Representatives:
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P. O. Box 792, Greenville, So. Carolina
TORRENCE L. MAYNARD
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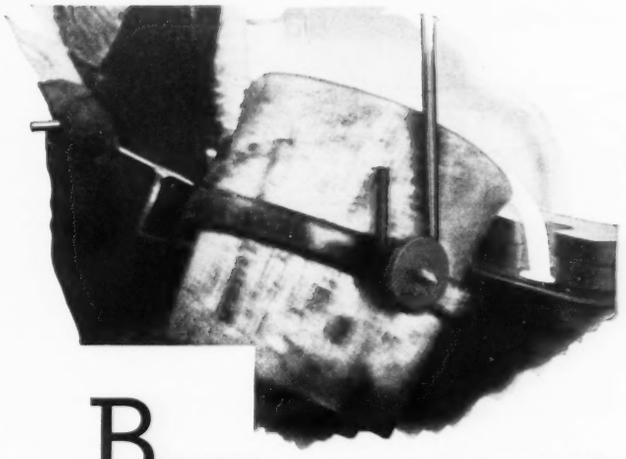
P. O. Box 158, Atlanta, Georgia

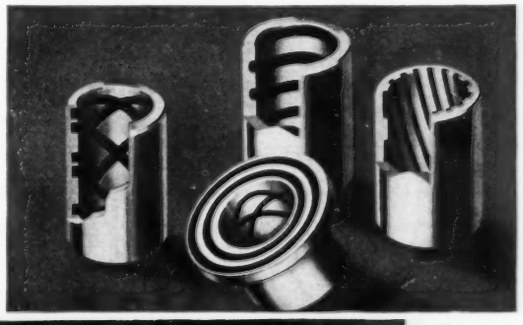
A TRAVELER FOR EVERY FIBRE

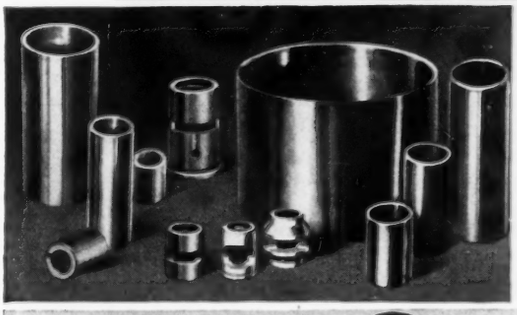
A Complete Bearing Service



BUNTING engineering and research staffs and Bunting advanced manufacturing methods have aided countless machinery manufacturers and maintenance men to a better solution of their bearing problems. Here are specialized services and products for the textile industries, based upon a vast and comprehensive experience in high lead bronzes, oil-less bearings, and standard alloys in all fields of bearing application. . . We will gladly enable you to become more familiar with our products and services which will save you time, trouble and money. . . The Bunting Brass & Bronze Company, Toledo, Ohio. . . Branches and Warehouses in All Principal Cities.

• Many sizes of graphited oil-less bearings are available from stock . . . completely machined and finished, ready for assembly. Write for catalog.





•Hundreds of different sizes of completely machined and finished standard alloy bearings, and bearings for all electric motor service replacements are available from stock. Write for catalog.

BUNTING Quality
BRONZE BUSHINGS • BEARINGS
MACHINED AND CENTERED BRONZE BARS
BABBITT METALS

THE PURE OIL CO.
PURE THREE POINT LUBRICATION
A COMPLETE LINE OF INDUSTRIAL PETROLEUM PRODUCTS
CHICAGO U.S.A.

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Do You Need a Southern Representative?

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COMPLETE TEXTILE MILL For Sale or Rent—All or Part

We have purchased all equipment, buildings and real estate of the former Pioneer Mills, Guthrie, Okla. Equipment cost new around $200,000. Suitable for manufacturing cotton goods, sacks, twine, etc. Will sell any or all, cash or terms.

Inventory On Request—Write

Sonken-Galamba Supply Co.
Riverview at 2nd. Street
Kansas City, Kansas

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As card grinder or fixer on frames or pickers. Can clothe cards. A run-down job needs me and I need it. Have family, will go anywhere. Can furnish references. Address Box 781, Macon, Ga.

POSITION WANTED

TIME STUDY ENGINEER, young and progressive, four years experience in Southern Textiles, excellent references. Address Box 440, care COTTON, Grant Bldg., Atlanta, Ga.

Paul B. Eaton

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1408 Johnston Bldg., Charlotte, N. C.
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Former Member Examining Corps
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Printing • Finishing • Bleaching • Dyeing Equipment

IMPERIAL PRINTING & FINISHING CO.
Mill St., Cranston, Providence, R. I.

7—Rice, Barton & Fales Printing Machines, 2 to 9 colors.
2500—Copper Print Rollers, 40" to 44" face, 14" to 20" circumference.
5—Butterworth and W. J. 90' Swing Tenter Frames.
6—Copper Jacketed Color Kettles, 75 to 150 gals.
500—Copper Dry Cans, 120" to 42" face.
3—Butterworth & Textile Agers, 30' to 24'.
3—Open Soapers, with dry cans, padders, etc.
3—Rodney Hunt Rope Soapers, 8' to 10'.
2—Butterworth Singers, Kemp Burners.
10—Butterworth & Textile Hydraulic Schreiner, Friction & Finishing Calenders.
1—Butterworth 60' Mercerizing Range.

Misc: Guides; Scutchers; Kiers; Padders; Mangles; Expanders; Heating Units.

NOTE: We are now Liquidating the Rayon Finishing Plant of the Sunbury Converting Works at Belvidere, N. J.

Representative on premises—Arrange to inspect.

CONSOLIDATED PRODUCTS COMPANY, INC.
14-17 Park Row New York, N. Y.

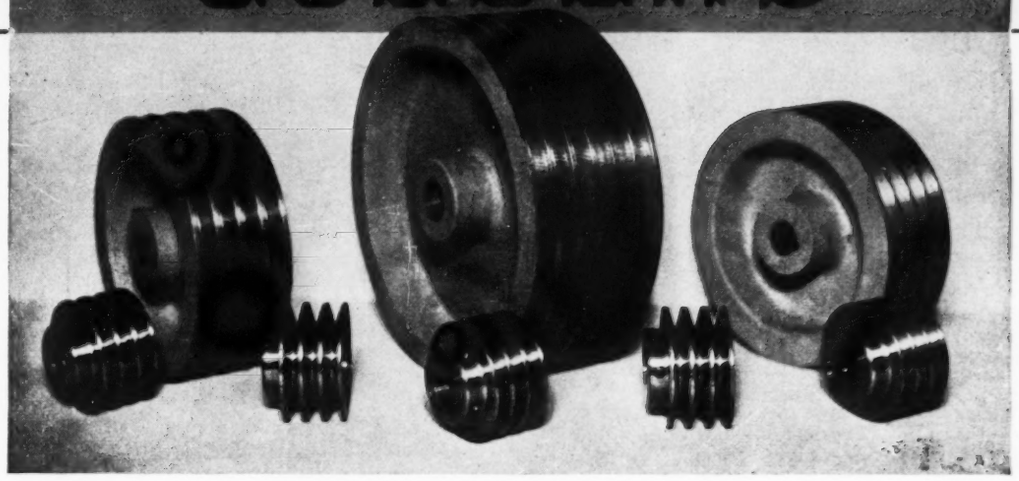
FOR SALE

One 24 Pole Smith-Drum Skein Mercerizing Machine in Good Condition. John Blood & Bro., Inc., Clearfield and Janney Sts., Philadelphia, Pa.

WANTED

To contact mills desiring an overseer of cotton spinning. Young, ambitious, 16 years as overseer with present employer. Apply Box No. 439, c/o COTTON, Grant Building, Atlanta, Ga.

GOLDENS'



V-BELT SHEAVES

LICENSED BY ALLIS-CHALMERS UNDER GEIST PATENT No. 1,662,511

THE Firm Behind the Product—synonymous with 56 years of designing and manufacturing Transmission Equipment.

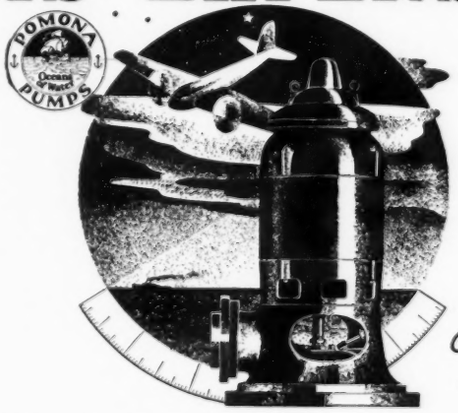
Over half a century devoted to meriting business because of Quality Products, and thousands of satisfied customers attesting to the results of striving towards the ideal of service.

Give your V-belts a good start towards a life of usefulness by running them on strong and well balanced Sheaves, with grooves accurately turned for any licensed make of V-belt.

Manufactured by

GOLDENS' FOUNDRY & MACHINE COMPANY, COLUMBUS, GEORGIA

GUESSWORK IS EXPENSIVE



The Most Copied Pump in America

Guesswork makes an easy start but a hard finish.

The Pomona policy of constantly insisting on the use of the best methods and materials, with precision workmanship, has been abundantly protective and profitable to textile mills who own Pomona Pumps. It has built a substantial organization with every facility for continual accuracy. It has made the name "Pomona" a guaranty of economy and satisfaction to textile mills all over the world.

What more effective insurance can the purchaser of a Pomona Pump desire than the certainty of accuracy in the product and the backing of a long-established organization of international scope?

POMONA PUMP CO.

Manufacturing Plants: Pomona, California — St. Louis, Missouri
Sales Offices: New York, Chicago, Los Angeles, San Francisco

POMONA TURBINE PUMPS

Where the Job Calls for

FINE NON-GUMMING OIL...

You'll find that 3-in-One not only meets the need satisfactorily, but actually provides far more equipment protection than you would expect from a light lubricant.

- **LUBRICATES**
- **CLEANS**
- **PREVENTS RUST**

As it lubricates, 3-in-One keeps working parts cleaner and prevents harmful rust. Three-in-One's special blending from the finest oils guarantees this triple protection. Write Today For Special Mill Prices!

THE A. S. BOYLE COMPANY
DISTRIBUTORS
257 CORNELISON AVE. - - JERSEY CITY, N. J.

3-IN-ONE OIL

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